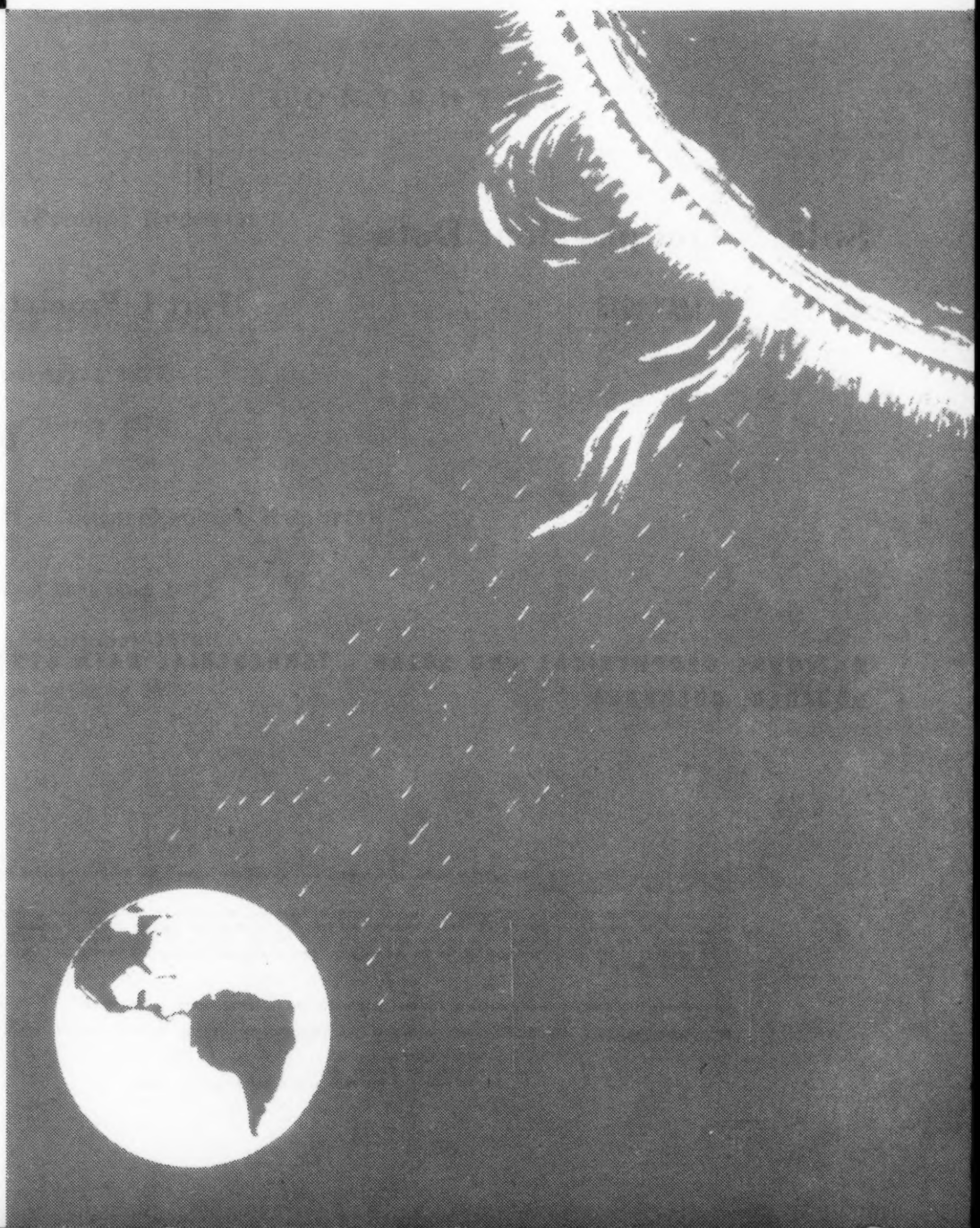
A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

SOLAR-GEOPHYSICAL DATA
(prompt reports)

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service

MAY 1973



NUMBER 345-PART I
DATA FOR
APRIL 1973
MARCH 1973

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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ENVIRONMENTAL DATA SERVICE
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Solar - Geophysical Data

NO. 345 MAY 1973

Part I (Prompt Reports)

DATA FOR
APRIL 1973
MARCH 1973

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
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No. 345

Issued in two parts

Hope I. Leighton, Editor

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Solar - Terrestrial Data Services Division

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

APRIL 1973

APR. 1973	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT	
			NO.	TYPE INCLUDING FLARE ACTIVITY EXPECTED
01	0400			S05E18 ERUPTIVE; THREE QUIET; SOLNIL
02	0400		02502	MAGSTORM BEGINS 01/1230Z MINOR
			02503	SOLALERT; N10W53, S06E05, N12E45 ERUPTIVE; ONE QUIET
03	0400		03504	MAGSTORM MINOR
			03505	SOLALERT; N13E35, S05W06 ERUPTIVE; FOUR QUIET
04	0400		04506	MAGSTORM ENDS 03/1730Z
			04507	SOLALERT; S06W29 ACTIVE; FIVE QUIET
05	0400			S04W40 ERUPTIVE; FIVE QUIET; SOLNIL
06	0400			S05W52, N12W07 ERUPTIVE; SIX QUIET; SOLNIL
07	0400			S05W65, S15E36 ERUPTIVE; THREE QUIET; SOLNIL
08	0400			S07E39 ERUPTIVE; FIVE QUIET; SOLNIL
09	0400			S05E27, S06W09 ERUPTIVE; SIX QUIET; SOLNIL
10	0400			S06E12, S06W22 ERUPTIVE; FIVE QUIET; SOLNIL
	1230	NERA FLARE IMPORTANCE TWO IN CENTRE REGION OUR TENCM IS DEFECT BUT AT ALL OTHER FREQUENCIES MAJOR BURST START AT 1223Z IN PROGRESS		
11	0400			S08E06 ACTIVE; FOUR QUIET; SOLNIL
12	0400		12508	SOLALERT; S08W12 ACTIVE; THREE QUIET
	1605	BOULDER PROTON EVENT 12/1240Z BOTH 5-21 AND 21-70 MEV 10X BACKGROUND		
13	0400			S08W30 ERUPTIVE; ONE QUIET; SOLNIL
	0620	KAKIOKA MAGSTORM BEGINS 13/0440Z		
14	0400		14509	MAGSTORM BEGINS 13/0439Z; S08W75 ERUPTIVE; ONE QUIET; SOLNIL
	0625	KAKIOKA MAGSTORM BEGINS 14/0248Z		
15	0400		15510	MAGSTORM EXISTS MINOR; S07W54 ERUPTIVE; ONE QUIET; SOLNIL
16	0400		16511	MAGSTORM EXISTS MINOR; TWO QUIET; SOLNIL
17	0400		17512	MAGSTORM EXISTS MINOR; S09W83 ERUPTIVE; ONE QUIET; SOLNIL
18	0400		18513	MAGSTORM MINOR ENDS 17/2300Z; THREE QUIET; SOLNIL
19	0400			TWO QUIET; SOLNIL
20	0400		20514	MAGSTORM BEGINS 20/0030Z MINOR; TWO QUIET; SOLNIL
21	0400		21515	MAGSTORM EXISTS MINOR; THREE QUIET; SOLNIL
22	0400		22516	MAGSTORM EXISTS MINOR; THREE QUIET; SOLNIL
23	0400		23517	MAGSTORM EXISTS MINOR; S05E80, N14E12 ERUPTIVE; TWO QUIET; SOLNIL
24	0400		24518	MAGSTORM EXISTS MINOR; S04E61, N12E02 ERUPTIVE; THREE QUIET; SOLNIL
	1437	BOULDER TENFLARE 325 UNITS 24/1411Z IN PROGRESS		
25	0400		25519	MAGSTORM ENDS 24/0600Z
			25520	SOLALERT; SUSPECTED PROTON FLARE 24/1931Z N13W07; N11W13, S16W52 ERUPTIVE; FIVE QUIET
26	0400		26521	MAGALERT 27/28; N13W24, S05E35 ERUPTIVE; ONE QUIET; SOLNIL
27	0400		27522	MAGALERT 27/28; N12W35, S06E22 ERUPTIVE; ONE QUIET; SOLNIL
28	0400		28523	MAGALERT 28/xx; N13W47, S06E09 ERUPTIVE; ONE QUIET
29	0400			N13W60, S05W06 ERUPTIVE; THREE QUIET; SOLNIL
	0407	BOULDER MAGSTORM BEGINS SC AT 28/1215Z GRADUAL INCREASE UNTIL 29/0215Z		
	2104	BOULDER TENFLARE 1800 FLUX UNITS 29/2056Z IN PROGRESS		
	2302	BOULDER PROTON EVENT 29/2302Z GREATER THAN 10 TIMES BACKGROUND 21-70 MEV		
	2346	TOYOKAWA TENFLARE 1310 UNITS 29/2150Z 100 MIN		
30	0400		30524	COSMIC EVENT BEGINS 29/2125Z
			30525	MAGSTORM BEGINS 29/0200Z MINOR
			30526	MAGALERT 02/XX
			30527	PROTON ALERT 30/02; N10W78 ACTIVE; FOUR QUIET
	2335	TOYOKAWA TENFLARE 160 UNITS 30/2253Z		

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

	1972 FINAL								1973 PROVISIONAL			
DAY	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
1	28	85	68	103	127	78	75	48	45	7	43	65
2	39	96	74	93	99	65	67	31	53	17	39	79
3	32	109	82	89	79	73	49	28	55	22	36	93
4	34	121	91	85	78	73	38	24	60	21	32	93
5	49	139	104	93	88	67	23	21	72	41	22	75
6	68	115	95	85	81	57	19	18	83	32	32	75
7	79	99	91	65	73	54	8	24	66	34	38	76
8	78	98	82	60	71	52	7	29	60	53	50	71
9	97	79	75	59	59	34	14	42	70	60	53	68
10	94	68	64	47	46	30	12	53	55	61	67	65
11	88	63	62	31	43	34	38	61	52	59	69	62
12	92	52	74	50	36	23	33	64	32	80	92	46
13	106	48	84	55	32	15	30	67	35	83	79	41
14	133	62	80	40	37	8	27	69	15	85	78	37
15	123	88	61	42	45	14	21	71	10	74	73	35
16	125	98	53	57	53	34	25	66	11	54	64	29
17	140	105	59	59	44	30	32	71	27	36	52	16
18	133	95	55	57	38	28	28	58	42	28	44	15
19	127	88	56	57	33	44	42	49	47	18	34	32
20	115	92	56	60	47	60	58	54	60	30	23	42
21	96	100	66	62	60	69	65	67	62	31	20	45
22	79	97	69	85	69	78	69	59	62	25	30	67
23	65	92	65	79	65	85	79	57	60	33	37	72
24	58	88	62	82	77	94	77	48	50	38	29	73
25	56	83	62	71	82	105	65	43	39	48	27	67
26	52	77	77	79	78	111	57	39	27	37	23	67
27	44	79	82	93	77	110	55	34	8	36	32	67
28	44	81	86	110	67	104	61	26	14	36	43	60
29	58	78	102	147	70	89	47	25	7		48	54
30	79	78	108	141	75	98	43	29	16		50	42
31	85		115	137		93		37	13		56	
MEAN	80.5	88.8	76.5	76.8	64.8	61.3	41.6	45.3	42.2	42.1	45.4	57.6

1972 yearly mean = 68.9

DAILY SOLAR FLUX AT 2800 MHz

OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

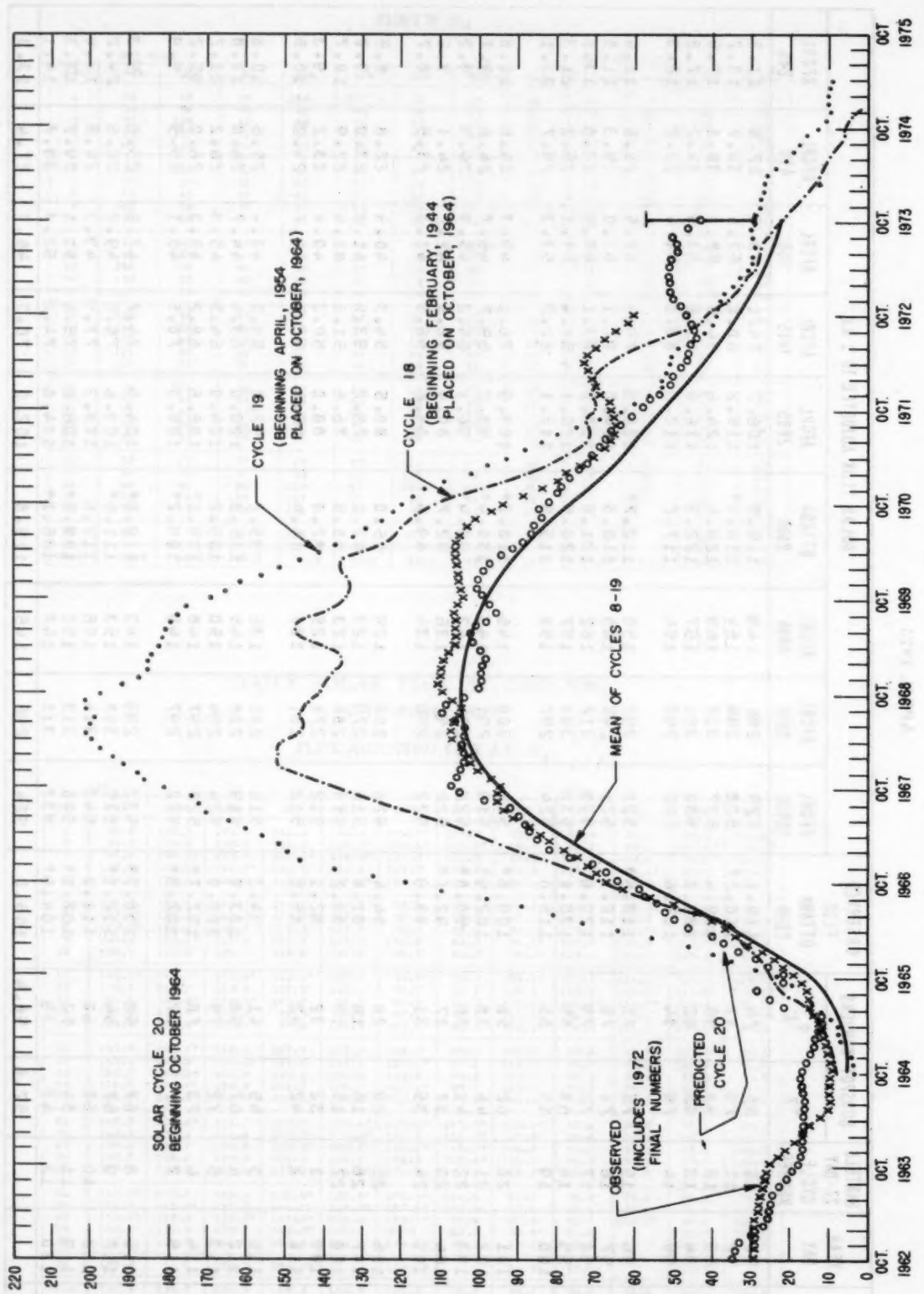
	1972								1973			
DAY	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
1	95.8	128.2	133.0	156.3	144.3	114.7*	129.9	91.1	93.9	88.6	99.5	115.0
2	94.9	130.0	137.0	150.4	139.7*	108.4*	121.8*	89.4	98.2	88.6	101.6*	116.1*
3	97.7	137.5*	139.9	147.1*	129.4*	107.3	113.9	85.2	105.1*	93.1	97.8*	129.4
4	102.7	149.5*	146.7*	146.0	122.0	103.3	115.8	82.3	109.3*	94.1*	96.6	122.3
5	108.7	164.8	150.2	146.5	117.0*	100.6	102.6	80.4	113.3	94.3	94.8	117.7
6	117.6	159.1	146.1	143.4	119.2	98.4	93.2	77.8	115.0	95.3*	98.9	112.7*
7	120.9*	152.7	143.2	139.8*	110.4	96.1	85.7	87.1	112.3	98.5	92.2	110.3
8	120.8*	150.2*	136.7	125.3	115.9	97.2	82.5	91.6*	103.2	100.5	98.9*	121.0
9	133.8	149.1*	127.1	123.8	112.9	100.5	82.3	94.7*	103.7	100.9	104.7*	120.5
10	138.3	139.5	121.7	118.6	107.2	94.7	84.7	97.2*	103.8	102.1*	105.6*	115.5
11	148.8*	143.2*	123.6*	113.3*	102.7	93.5*	88.3	105.1*	102.8	101.2	113.4	118.3*
12	148.6	149.7	119.3	107.6	100.6	94.7	88.7	108.9	103.5	104.6*	114.5	130.4*
13	161.6	138.9*	119.9*	101.7	94.6	94.5	86.7	111.2*	100.9*	104.7*	118.9	99.4*
14	162.8	136.5	119.5	97.9	99.5	97.0	85.1	114.8*	96.2	105.6	114.0*	92.7*
15	164.6	139.5*	117.6	97.6	103.4	102.1*	86.5	116.1*	94.6	104.7	107.1*	89.5
16	161.8	142.7*	115.1	100.6	103.1	106.2	89.6	118.2	93.8	98.7	106.9	85.8
17	169.3	149.6	114.6*	106.4	100.3	112.1*	91.5	111.9	94.2	94.2	101.5	82.1
18	165.5	149.8*	108.9	109.6	102.6	111.0	94.6	112.4	95.3	90.7	94.9	80.9
19	156.7	143.2*	108.9	116.2	106.2	117.1*	99.7	113.2	94.8	88.9	96.7*	82.8
20	152.3	142.5	110.9	117.9	113.2	122.2	109.4	111.4	98.3	89.4	91.0	86.4
21	148.2	139.8*	111.7	119.5	113.4*	132.8*	109.3*	113.4*	97.9	89.9	87.4	95.2
22	143.3	135.1	111.6	127.3*	119.4*	141.7	110.9*	107.9*	98.5	89.7	90.3	105.0
23	138.2	130.7	109.6	122.9*	125.2*	151.2*	115.3*	106.2	97.2	91.4	87.1	109.2
24	135.5	126.5	109.5	122.6	126.8	156.5	115.4*	101.1	96.9	93.6*	89.4	109.0*
25	127.3	125.5	112.4	127.8	126.3*	171.8	112.7	103.3*	95.6	97.2	98.0	109.2*
26	116.3*	128.8	128.6	137.4*	122.5*	178.8*	108.6	97.7	95.3	95.6	88.6	118.0*
27	114.3	121.9*	127.2	144.1	118.3*	167.6*	102.3	97.6	93.4	98.2	92.0	111.6*
28	118.8*	127.3	133.3*	147.2*	116.4	159.1*	97.5	91.9	91.7	100.9*	94.2	112.6
29	116.2	132.4	139.1	163.3*	115.2	B.I.P.	92.7	92.8*	91.4		99.0	109.5*
30	116.8	134.5	141.2*	163.3	118.5	144.6*	95.1	92.0*	89.7		102.7	106.2*
31	122.5		150.2	154.2*		140.1*		94.3	87.7		110.3	
MEAN	132.5	139.7	126.0	128.9	114.9	120.2	99.7	99.7	99.0	96.3	99.4	105.8

B.I.P. = burst in progress
* adjusted for burst

DAILY SOLAR INDICES

APRIL 1973

APR. 1973	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFCRL 15400	AFCRL 8800	AFCRL 4995	OTTAWA 2800	AFCRL 2695	AFCRL 1415	AFCRL 606	AFCRL 410	AFCRL 245
1	91	10	65	74	115.1	525	296	149	115.0	106.7	74.1	48.3	27.8	11.3
2	92	11	79	91	118.2*	520	299	164	118.1*	115.2	80.0	50.4	30.7	13.7
3	93	12	93	93	129.4	527	310	169	129.4	124.6	84.0	58.0	38.1	17.6
4	94	13	93	92	122.2	530	301	157	122.3	116.8	81.5	53.5	34.2	17.2
5	95	14	75	84	117.6	522	299	154	117.7	112.0	83.3	54.4	29.2	18.3
6	96	15	75	71	112.5*	522	293	150	112.7*	108.9	79.3	52.5	28.5	11.4
7	97	16	76	76	110.1	521	295	145	110.3	104.3	77.1	53.0	29.3	11.8
8	98	17	71	79	120.6	530	312	162	121.0	117.0	83.1	55.5	32.0	13.1
9	99	18	68	85	120.1	530	309	157	120.5	120.1	91.4	58.1	35.2	21.3
10	100	19	65	65	115.0	524	297	150	115.5	112.1	82.2	53.3	29.7	23.1
11	101	20	62	56	109.8*	529	300	146	110.3*	109.5	76.1	49.3	26.6	11.8
12	102	21	46	38	102.9*	519	291	143	130.4*	99.2	69.7	46.7	24.6	9.7
13	103	22	41	36	98.8*	522	296	142	99.4*	96.1	64.2	45.9	24.9	9.2
14	104	23	37	27	92.1*	520	291	136	92.7*	89.4	58.5	42.2	24.1	9.0
15	105	24	35	31	88.9	522	290	134	89.5	84.6	56.5	41.3	23.5	8.7
16	106	25	29	20	84.4	523	284	129	85.0	80.5	54.3	40.5	22.8	8.5
17	107	26	16	10	81.4	516	279	123	82.1	78.2	53.0	41.3	23.0	9.0
18	108	27	15	13	80.2	513	280	123	80.9	76.6	51.3	41.4	22.9	10.7
19	109	1	32	32	82.1	512	276	125	82.8	80.0	50.3	40.4	23.2	9.3
20	110	2	42	42	85.5	512	281	128	86.4	85.3	52.5	40.7	24.2	10.5
21	111	3	45	41	94.3	516	285	136	95.2	92.0	59.0	43.4	25.6	10.8
22	112	4	67	58	103.9	519	288	145	105.0	100.0	63.5	44.7	26.0	13.8
23	113	5	72	75	108.0	524	294	150	109.2	104.0	64.5	45.3	26.2	21.7
24	114	6	73	70	107.7*	520	297	148	109.0*	106.6	68.2	45.0	26.0	15.2
25	115	7	67	57	107.9*	522	297	145	109.2*	105.3	70.5	45.1	25.5	9.9
26	116	8	67	58	108.7*	532	299	143	110.0*	104.5	74.7	47.6	25.8	9.3
27	117	9	67	64	110.1*	535	308	153	111.6*	109.6	76.9	49.2	28.6	24.2
28	118	10	60	62	111.0	543	314	156	112.6	108.2	77.9	49.0	24.5	12.6
29	119	11	54	52	107.9*	540	313	152	109.5*	106.8	75.8	51.1	29.2	13.3
30	120	12	42	39	104.6*	533	311	147	106.2*	104.6	74.2	52.3	30.7	14.1
MEAN			57.6	56.4	105.0	524	296	145	105.8	102.0	70.3	48.0	27.4	13.3



PREDICTED AND OBSERVED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS

CYCLE 20

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1964										9.6	10.2	11.0
1965	11.7	12.0	12.5	13.6	14.6	15.0	15.5	16.4	17.4	19.7	22.3	24.5
1966	27.7	31.3	34.5	37.4	40.7	44.6	50.3	56.6	63.1	67.6	70.2	72.7
1967	75.0	78.8	82.2	84.6	87.4	91.3	94.1	95.3	95.3	95.0	97.1	100.6
1968	102.6	102.9	104.7	107.2	107.6	106.6	105.2	104.8	107.0	109.9	110.6	110.1
1969	110.0	109.6	108.0	106.4	106.2	106.1	105.8	106.4	105.4	104.1	104.6	104.9
1970	105.6	106.0	106.2	106.1	105.8	105.3	103.8	101.0	97.2	93.9	89.4	84.1
1971	80.4	77.8	74.4	70.9	68.1	66.7	65.4	64.6	65.8	66.2	66.8	69.4
1972	70.8	71.2	72.4	73.4	72.9	70.5	68.1	65.4	62.0	60.3	59.9	59.0
											(2)	(5)
1973	57.8	56.2	54.3	52.2	50.7	48.8	47.2	46.4	44.9	42.6	40.3	38.3
	(5)	(6)	(6)	(8)	(9)	(10)	(10)	(11)	(13)	(14)	(13)	(13)
1974	36.9	35.7	34.8	33.9	33.1	32.0	30.5	28.7	26.6	24.6	22.6	21.2
	(13)	(13)	(14)	(15)	(15)	(15)	(15)	(15)	(14)	(14)	(15)	(15)
1975	20.0	18.6										
	(14)	(13)										

For each month, the upper figure is the observed or predicted Zürich smoothed sunspot number. The lower figure in parenthesis is the corresponding absolute value of the 90% prediction interval, an indication of the uncertainty above and below the predicted number. Observed numbers are those with no prediction intervals. The observed smoothed sunspot numbers are based on final Zürich numbers through 1972.

The predicted sunspot numbers are derived from a regression analysis based on cycles 8 through 19. Tests indicate that earlier cycles are from a different statistical population. From July 1968 - February 1970 a regression analysis based on cycles 1 through 19 was used because it had not then been proven that two populations exist.

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

APRIL 1973

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE APR	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.				TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
ISTA	01	0805	0830	0810	S05	E13	.225		2.3	25	2B								
MANI	01	0811	0845	0815	S04	E12	.212	12293	2.2	34	1N	2		0815	2.84	2.89			
BUCA	01	0813E	0830D		S04	E13	.228	12293	2.3	17D	1N		C	0817	2.21	2.30			E
RAMY	01	1532E	1551	1534	S04	E07	.129	12293	2.2	19D	1N	3	C		2.60				F
RAMY	01	1702	1733	1707	N13	E45	.752		5.1	31	SB	3	C		1.58				F
MCMA	01	1703	1735		N13	E44	.742	12298	5.0	32	1B		C	1712	1.39	2.10			FH
RAMY	02	1322	1410	1326	N11	E35	.629	12298	5.2	48	1B	3	V		1.96				F
MEND	02	1323E	1343D		N14	E33	.624	12298	5.0	20D	2N		P		8.25				
TEHR	02	1324E	1352	1327	N10	E35	.623	12298	5.2	28D	1N	3	V		1.98				F
ATHN	02	1324E	1403	1325	N12	E38	.670		5.4	39D	SB	2	V		1.49				F
MEUD	03	1526	1541		S15	E68	.921	12300	8.7	15	1N		C	1528	.93				
MEUD	04	1129	1245		S12	E68	.922	12300	9.6	76	1N		C	1141	1.55				F
ATHN	04	1130E	1137D	1130U	S14	E72	.946		9.9	7D	SN	2	V		.66				DE
UPIC	04	1154E	1251	1159	S11	E68	.922	12300	9.6	57D	1B		P	1159	1.49				
PALE	06	1759E	1814	1802	S07	W64	.895	12293	1.9	15D	1N	3	C		1.08				F H
MANI	07	2253	2259D	2256	S08	E42	.665	12306	11.1	6D	1N	2		2256	1.75	2.36			
MITK	07	2256	2301D	2259	S12	E43	.680	12306	11.2	5D	1N		P	2259	2.27	3.10			E
MANI	08	0415	0423D	0418	S08	E37	.598		11.0	8D	SN	2		0418	.72	.90			
MITK	08	0416	0505	0437	S11	E37	.600	12306	11.0	49	1N		C	0437	2.27	2.90			E
PALE	08	0418E	0428	0419U	S10	E38	.613		11.0	10D	SF	2	V		.46				F
ISTA	08	0800E	0910		S08	E34	.556	12306	10.9	70D	1N								
MANI	08	0814E	0817D	0814	S06	E35	.571		11.0	3D	SF	1		0814	.41	.50			
ATHN	08	0846	0915	0849	S10	E33	.543		10.8	29	SN	3	V		.50				DE
ATHN	08			0857							SN				.66				DE
MANI	08	0857E	0911	0857	S07	E35	.570		11.0	14D	SN	1		0857	.83	1.01			
RAMY	10	1312E	1335D	1315U	S12	W19	.337	12300	9.1	23D	1F	4	V		3.09				U
MEUD	10	1315E	1352D		S12	W20	.352	12300	9.1	37D	2N		C	1336	8.25	8.60			U
MCMA	10	1348E	1342D		S13	W21	.372	12300	9.0	2D	1N		P	1340	5.16	5.40			BU
MCMA	11	1400	1440	1405	S12	W07	.160	12306	11.1	40	1B		C	1405	2.32	2.30			FV
MCMA	11	1836	2200D	1845	S08	W10	.176	12306	11.0	204D	1B		C	1845	2.58	2.60			FHKLIV
PALE	11	1838	2203	1849	S10	W10	.186	13306	11.0	205	1B	3	C		3.61				F U
PALE	11			1856							1B				2.71				F U
RAMY	11	1840	2136	1844	S08	W11	.193	12306	11.0	176	1B	4	V		2.89				F
RAMY	11	2020E	2030	2022U	S14	W07	.184		11.3	10D	SN	3	V		1.44				DE
MANI	22	2243E	2258	2245	S03	E87	.998	12323	29.5	7D	1B	1		2245	1.03	3.09			
PALE	22	2243E	2246D		S03	E85	.996		29.3	3D	SN	2	V						F
PALE	23	2254	2315	2300	S06	E69	.931	12323	29.1	21	1N	3	C		1.36				F
MANI	23	2302E	2308D	2302U	S07	E70	.937	12323	29.2	6D	1N	2		2302	1.86	3.98			
PALE	24	1917	2010	1928	N13	W05	.318	12322	24.4	53	1B	3	C		2.35				F
RAMY	24	1924E	2010	1927	N13	W07	.328		24.3	46D	SB	4	V		1.32				F
MANI	25	0420	0510	0429	N11	W13	.349	12322	24.2	50	1N	2		0429	2.27	2.40			
ATHN	25	0422E	0452	0425	N10	W12	.326		24.3	30D	SN	1	V		1.65				F
MITK	25	0436	0440D	0437	N11	W13	.349	12322	24.2	4D	1N		C	0437	2.78	3.00			E
ATHN	25	1211E	1222D	1213	N15	W18	.448		24.2	11D	SN	2	V		.83				F
RAMY	25	1212	1250	1219	N12	W20	.439		24.8	38	SN	4	C		1.30				U F
MCMA	25	1221E	1340		N12	W19	.427	12322	24.1	79D	SN		C	1226	.93	1.00			E
TEHR	25	1229E	1252	1229U	N12	W18	.415	12322	24.2	23D	1N	2	V		2.31				F
MANI	26	0624	0731	0631U	N13	W30	.568	12322	24.0	67	1N	2		0631	2.27	2.77			
MANI	26			0636							1B			0636	3.61	4.41			
ATHN	26	0628	0732	0637U	N12	W30	.562		24.0	64	SN	2	C		1.65				F
UPIC	26	0632	0729		N13	W31	.581		23.9	57	SB		P		1.69	1.01			
UPIC	27	1011	1043	1015	N14	W37	.658	12322	24.6	32	1B		P	1015	2.54				
MEUD	27	1012	1025	1015	N13	W38	.664		24.6	13	SN		C	1015	1.13	1.50			E
RAMY	27	1024E	1133	1026U	N13	W37	.653		24.7	69D	SN	2	C		.56				DE
RAMY	27			1052U							SF				.84				DE
MONT	27	1109	1136	1118	N12	W38	.659		24.6	27	SN		C	1118	.52				E
MEUD	27	1112	1125		N12	W38	.659		24.6	13	SF		C	1116	.62	.80			
TEHR	29	0351	0439	0419	N14	W64	.914	12322	24.4	48	1N	4	C		1.37				F
MANI	29	0413	0418D	0418U	N12	W67	.931	12322	24.2	5D	1B	2		0418	1.44	3.00			
BUCA	29	0625E	0705D		N13	W67	.932	12322	24.2	40D	1N		C	0631	1.32	3.40			E
MANI	29	0626	0647D	0630	N13	W66	.926		24.3	21D	SB	2		0630	.93	1.89			
ATHN	29	0628E	0718	0630	N10	W65	.916		24.4	50D	SB	3	V		1.16				DE
ISTA	29	0910	1058D		N12	W65	.918		24.5	108D	SN								
ISTA	29	0955	1025	1004	N13	W71	.954		24.1	30	SB								
ATHN	29	1001E	1130	1003	N12	W72	.958		24.0	89D	SB	3	V		.66				DE

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

APRIL 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
					APPROX.														
	DATE	START	END	MAX. PHASE	LAT.	MER. DIST.	CENTRAL DISTANCE	MONATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH MB	MAX. INT. %	
	APR																		
RAMY	29	1015E	1119D	1018U	N12	W66	.925	12322	24.5	64D	1N	2	C		2.78				F
PALE	29	2056E	2238D	2100	N14	W72	.960	12322	24.5	102D	1B	3	C		2.87				Z F
PALE	29			2108							2B				2.53				Z F
RAMY	29	2056	2150D	2100	N13	W73	.964	12322	24.4	54D	2B	2	V		2.64				Z U
MANI	29	2158E	2255	2158U	N13	W75	.972	12322	24.3	57D	1B	1		2158	1.55	3.66			
MITK	29	2245E	2320	2303	N13	W90	1.000	12322	23.2	35D	1F		C	2303	.52				EH
MITK	30	0550	0655D	0559	S04	W22	.374		28.6	65D	2B		C	0559	9.90	10.60			F
ATHN	30	0551	0740	0559	S05	W23	.390	12323	28.5	109	1B	1	C		3.65				U F
TEHR	30	0552	0745	0600	S06	W23	.390	12323	28.5	113	1B	4	C		3.92				U F
MANI	30	0553	0614D	0604	S05	W22	.374	12323	28.6	21D	1B	2		0604	4.64	5.00			
WEND	30	0555E	0742		S04	W24	.406	12323	28.4	107D	2N		P		12.38				
UPIC	30	0623E	0739	0640	S03	W21	.358		28.7	76D	SB		P	0640	1.49				I
ATHN	30	0825E	0900	0835U	S10	E90	1.000		7.1	35D	SN	3	V						DE
MONT	30	0836	0907	0855	S11	E87	.998	12332	6.9	31	1N		C	0855	2.27				
UPIC	30	0846	0913	0852	S08	E90	1.000	12332	7.1	27	1N		P	0852	.42	1.66			
MONT	30	1102	1116	1111	S11	E86	.997		6.9	14	SN		C	1111	.21				
UPIC	30	1111	1134		S10	E90	1.000	12332	7.2	23	1N		P		.42	1.66			
UPIC	30	1247	1303		N11	W87	.999	12322	24.0	16	1N		P		.42	1.66			
UPIC	30	1330	1345		N08	W86	.998	12322	24.1	15	1B		P	1334	.63	1.74			
WEND	30	1334	1343		N12	W85	.998		24.2	9	SN								
RAMY	30	1725	1751D	1729	N13	W85	.998		24.4	26D	SB	4	C		.37				Y
PALE	30	1737E	1808	1743	N14	W85	.998	12322	24.4	31D	1B	3	C		1.63				Y
PALE	30	2247	2312	2255	N14	W88	1.000	12322	24.3	25	1B	3	C						DE
PALE	30			2301															DE
MANI	30	2250E	2305D	2302	N12	W90	1.000		24.2	15D	SN	2		2302	.21	.67			

"Remarks":
A = Eruptive prominence, base at >90°
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (|| or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

SOLAR FLARES

Date, time (UT) and coordinates of Subflares not included in preceding table.

APRIL 1973

01 0005E N13 E60	01 0022 N10 W40	01 0034E N10 W40	01 0128 N09 W40
01 0242E N10 W40	01 0509 N14 E53	01 0608 N09 W43	01 0615E N09 W43
01 0754E N11 E50	01 1038E N08 W40	01 1053 N12 E55	01 1215E N13 W54
01 1744 N14 E48	01 2001E N14 W68	01 2214E N12 E42	01 2259E N13 E41
02 0645 N14 E39	02 0829 S06 W04	02 0859 S16 E52	02 0903 S13 E51
02 0914 N09 W59	02 0914E N11 W60	02 0914E N10 W60	02 0920 N09 W61
02 0949 N13 E38	02 0949E N15 E36	02 0950E N14 E40	02 1045 S05 W04
02 1241 S13 E49	02 1243 N12 E32	02 1711E S06 W10	02 1858E N12 E37
02 1925E N10 W66	02 1927E N10 W68	02 1939 S06 W07	02 2031E N13 E33
03 0000E S07 W05	03 0211 N10 W80	03 0245 S14 E80	03 0322 S14 E79
03 0456E N12 E22	03 0457 S14 E77	03 0458 S12 E75	03 0458E S15 E73
03 0603E S05 W12	03 0711 S38 W15	03 0711E S07 W15	03 0722 S04 W11
03 0800 S07 W17	03 0808E S38 W16	03 0808E S06 W16	03 0810 S05 W12
03 0841E S05 W18	03 1223E S15 E68	03 1243E S04 W18	03 1246E N13 E22
03 1412 N13 E21	03 1523 S06 W20	03 1737E S11 E70	03 1750E S06 W19
03 2138 S06 W24	03 2221 S37 W24	04 0830E S06 W26	04 0228 S04 W27
04 0523E N13 E12	04 0524 N13 E10	04 0905 S02 W31	04 0907 S03 W31
04 1159E S06 W35	04 1233 S36 W34	04 1345 S06 W34	04 1351E S06 W36
04 1741 S07 W28	04 1838E S37 W38	04 2029E S06 W40	04 2129 S05 W37
05 0241 S13 E50	05 0354E N12 W01	05 0513 S13 E47	05 0517E S12 E47
05 1701 S15 E42	05 1703 S16 E42	05 1753 N15 W06	05 1822 N14 W06
05 2028E N15 W11	06 0433 S12 E64	06 0434 N12 E65	06 0458 S13 E35
06 0805 S05 W58	06 1255E S07 W60	06 1545 S08 W64	06 1552E S06 W64
06 1724 S09 E27	06 1725E S38 E25	06 1727E S10 E29	06 1956 S13 E35
07 0127E S07 W71	07 1428 N18 W34	07 1721 S12 E46	07 2245E S03 W77
08 0257 S08 E03	08 0258 S09 E40	08 0259 S12 E40	08 0300E S13 E40
08 0306E S03 W82	08 0309 S13 E40	08 0309 S13 E40	08 0315E S09 E40
08 0350 S08 E04	08 0350E S09 E04	08 0353 S11 E39	08 0455E S08 E38
08 0519 S09 E35	08 0525E S08 E32	08 0529 S09 E01	08 0532E S08 E02
08 0633E S06 E37	08 0637E S08 E01	08 0700E S08 E35	08 0713E S05 E36
08 0927E S04 W86	08 1059E S10 E32	08 1117 S08 W03	08 1125 S03 W86
08 1421E S09 E34	08 1433E S08 E33	08 1514 S08 W04	08 1727 S08 W06
08 2142E S02 W90	08 2208E S08 W07	08 2222E S02 W90	08 2227 S08 W07
08 2243E S10 E28	08 2333E S08 W07	09 0023E S10 W06	09 0032E S09 W07
09 0045E S04 W90	09 0204E S10 W08	09 0215E S08 W10	09 0353E S09 W09
09 0459 S10 W11	09 0526E S09 E25	09 0616E S09 W09	09 0754 S09 W12
09 0854 W12 E09	09 0855E S13 E09	09 0858E S13 E11	09 0910 S09 E25
09 1222E S10 E18	09 1222E S10 E17	09 1541 S09 E17	09 1543 S09 E15
09 2045 S10 W10	09 2131 S10 E12	09 2251 S08 E17	09 2252E S09 E11
09 2325E S09 E11	09 2325E S09 E13	09 2335E S09 W16	09 2335E S08 W17
10 0031E S08 E16	10 0107E S07 E11	10 0152 S08 E11	10 0156E S08 E12
10 0732 S09 W26	10 0734E S07 E12	10 0738 S08 W25	10 0739E S09 W27
10 1000 S07 E12	10 1046E S08 E10	10 1057 S08 E10	10 1057E S08 E11
10 1312E S08 E09	10 1315E S08 E09	10 1704 S13 E01	10 1905 S08 E06
10 2134 S06 E02	11 0134 S07 W37	11 0137 S09 W36	11 0155 S08 W05
11 0228 S07 W03	11 0327 S07 W01	11 0332 S06 E00	11 0340E S07 W04
11 0623E S10 W01	11 0624E S06 W05	11 0757 S11 W04	11 0920 S08 W10
11 0948 S09 W09	11 0957E S07 W09	11 1300 S07 W07	11 1529 S08 W13
11 2252E S08 W15	11 2304 S08 W16	12 0002 S08 W13	12 0208 S08 W13
12 0216E S08 W12	12 0217E S11 W51	12 0305 S09 W12	12 0307 S08 W14
12 1333 S08 W56	12 2212 S38 W28	12 2225E S08 W27	12 2307E S10 W25
13 0118 S08 W26	13 0129 N14 W78	13 0150 S08 W26	13 0214 S08 W26
13 0510 S07 W28	13 0511 S08 W32	13 0541 S08 W66	13 0657E S05 W41
13 0856 S12 W31	13 0857 S10 W32	13 0857E S12 W33	13 0859E S11 W31
13 1350 S09 W36	13 1352E S09 W35	13 1353E S08 W36	13 1354E S07 W33
13 1651 S08 W35	13 1715 S09 W36	13 1715 S09 W36	13 1715 S08 W36
13 1902 S08 W37	13 1940 S11 W37	13 1941 S13 W37	13 1942E S10 W34
13 2051 S07 W38	13 2139 S09 W39	13 2252E S08 W40	14 0311E S08 W41
14 0625 S08 W44	14 0948E S38 W47	14 0953E S08 W46	14 1007 S08 W46
14 1106 S10 W47	14 1158E S09 W46	14 1227 S09 W45	14 1230 S10 W44
14 1437 S11 W49	14 1443E S09 W50	14 1640E S11 W45	14 1750 S08 W52
15 0331 S05 W59	15 0334 S36 W58	15 0658E S07 W58	15 0702 S06 W58
15 0900E S07 W59	15 0902 S06 W61	15 0903 S06 W59	15 0903E S07 W60
15 1748 S09 W64	15 2003 S05 W68	15 2236E S07 W69	15 2308 S07 W69
16 0237 S12 W69	16 0802 S07 W72	16 0804 S07 W73	16 0806 S08 W70
16 0956 S08 W70	16 1203 S08 W76	16 1309E S10 W77	16 1725 S08 W75
16 1923E S12 W70	17 2251 N13 E65	18 0232 N10 E82	18 0439E N11 E84
18 2259 N11 E69	18 2327 N11 E70	19 0002 N11 E68	19 0126E N11 E69
19 0248E N12 E68	19 0803 N10 E66	19 1033E N11 E64	19 1243E N11 E63
19 1833E S13 E28	20 0031 N38 E57	20 0033 N07 E56	20 0050 S15 E20

01 0133 N10 W40	01 0238 N10 W40		
01 0750 N12 E51	01 0752 N12 E51		
01 1215E S06 E10	01 1402E S04 E08		
02 0410 N12 E40	02 0459 N11 E43		
02 0912 N09 W59	02 0913E N08 W57		
02 0946 S04 W03	02 0947 N15 E38		
02 1045E S03 W04	02 1239 N15 E37		
02 1903E N13 E35	02 1903E S15 E81		
02 2210E S03 W08	02 2358 S03 W08		
03 0341 N10 W76	03 0406E S15 E78		
03 0500 N14 E26	03 0525E S05 W12		
03 0756 S05 W17	03 0756 S07 W16		
03 0832 S06 W17	03 0836 S06 W17		
03 1333E N13 E21	03 1335E N14 E20		
03 2105 N03 W23	03 2105 S03 W23		
04 0304 S07 W29	04 0518 N16 E12		
04 0910E S04 W32	04 0910E S04 W32		
04 1424 S05 W36	04 1428 S05 W39		
04 2201 S07 W42	04 2202E S07 W40		
05 0517E S13 E48	05 0704 S13 E48		
05 1823 N15 W06	05 1945 N17 W12		
06 0458 S14 E39	06 0521 N14 W14		
06 1629 S09 E30	06 1636E S07 E27		
06 2342E S08 E25	07 0124 S07 W73		
08 0208 S09 E36	08 0220E S07 E37		
08 0300E S09 E04	08 0302 S08 W78		
08 0343 S11 E40	08 0350 S09 E02		
08 0515 S10 E35	08 0517E S07 E38		
08 0537E S08 E02	08 0603 S09 E36		
08 0803E S08 E00	08 0843E S08 W81		
08 1415 S07 E33	08 1415 S07 E33		
08 1730 S08 W05	08 1737 S09 W03		
08 2227E S09 W05	08 2240E S10 E29		
09 0037E S09 W08	09 0045E S09 E29		
09 0445E S08 E27	09 0446 S08 E28		
09 0757E S09 W10	09 0822E S09 W10		
09 1100E S10 E18	09 1100 S10 E18		
09 1621 S09 E17	09 2027 S10 E12		
09 2311 S09 E13	09 2315E S09 E11		
10 0026E S09 E16	10 0030 S08 E14		
10 0208E S12 E07	10 0731 S08 E13		
10 0748E S08 W27	10 0959 S08 E11		
10 1223E S08 E09	10 1225E S08 E09		
10 1916E S03 E06	10 2123 S11 E06		
11 0155 S07 W05	11 0226 S07 W05		
11 0341 S08 W07	11 0353 S07 W38		
11 0928 S07 W09	11 0922 S07 W07		
11 1620 S08 W13	11 2206E S08 W16		
12 0210E S07 W13	12 0216E S06 W49		
12 0359 S07 W15	12 0401 S09 W12		
12 2326E S09 W26	13 0029 S08 W25		
13 0509 S09 W29	13 0509 S09 W29		
13 0657E S10 W41	13 0710E S08 W37		
13 1201E S08 W32	13 1326 S08 W34		
13 1545 S06 W37	13 1600E S09 W37		
13 1729E S08 W35	13 1900 S09 W36		
13 2016 S08 W38	13 2051 S09 W37		
14 0455 S09 W43	14 0544E S07 W47		
14 1035 S08 W46	14 1058E S08 W47		
14 1232E S09 W49	14 1320 S12 W80		
14 2105 S08 W55	14 2137 S07 W53		
15 0702E S08 W59	15 0900 S08 W59		
15 1715 S09 W64	15 1739 S13 W66		
15 2300 S07 W69	15 2345E S07 W70		
16 0806 S08 W76	16 0955 S07 W73		
16 1732E S07 W77	16 1820E S10 W76		
18 0802E N11 E80	18 0809 N09 E76		
19 0143E N14 E71	19 0245 N11 E69		
19 1243 N11 E63	19 1830 S15 E25		
20 0053E S15 E22	20 0209 N12 E57		

SOLAR FLARES

APRIL 1973

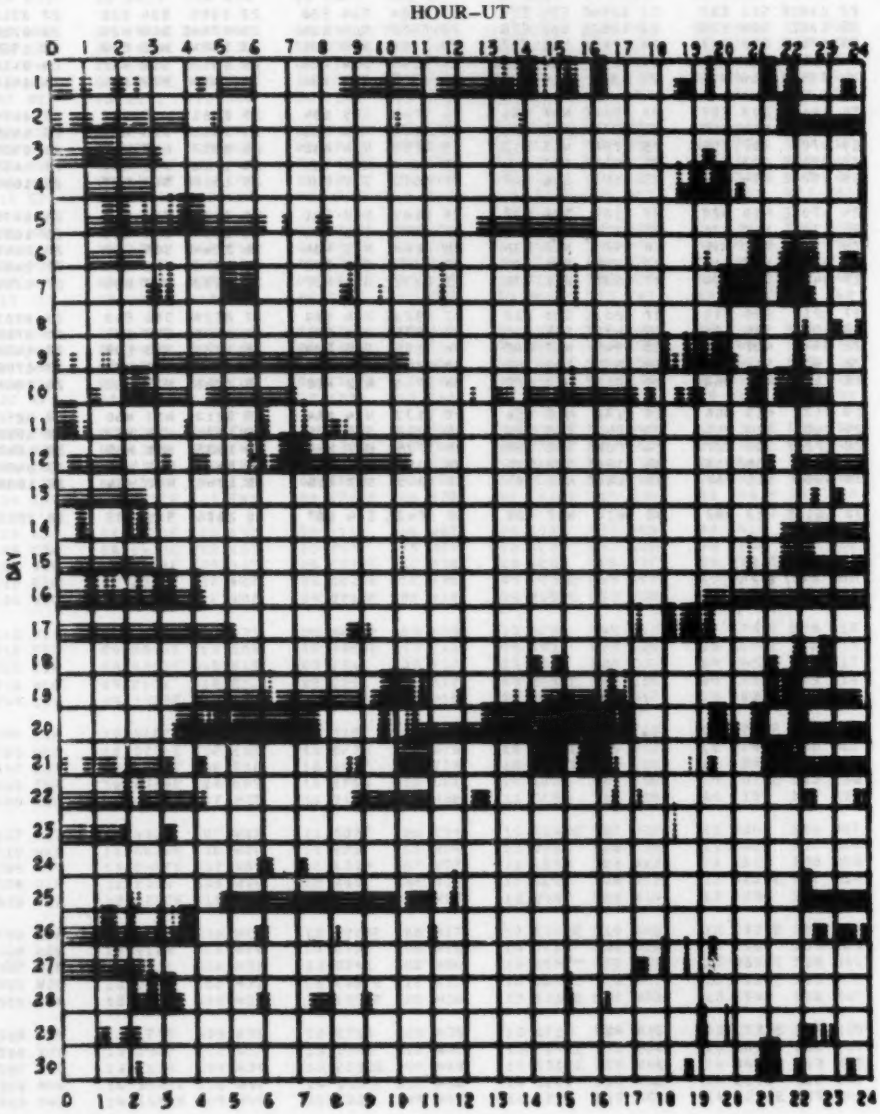
20 1405E N10 E50	21 0052E S15 E10	21 0052E N13 E42	21 0113E S16 E08
21 0650 N08 E35	21 0655E N38 E38	21 0655E N08 E38	21 0658 N09 E35
21 1933E N11 E33	21 2050 N14 E33	21 2126 N14 E33	21 2340 N13 E33
22 0243 N13 E31	22 0957E N11 E27	22 1227E N13 E25	22 1408E S05 E87
22 1504 N11 E21	22 1820 N14 E19	22 1820 N14 E19	22 1823 N11 E22
22 2215E N14 E20	22 2302E S03 E87	23 0254E S06 E77	23 0304 S04 E80
23 0319E N15 E17	23 0351 S04 E79	23 0352E S03 E79	23 0532 N14 E16
23 0925E S15 W26	23 1703E N12 E07	23 1742E N11 E07	23 1919 N09 E06
23 1955E N12 E08	24 0242 S15 W37	24 0242E S13 W36	24 0310 S14 W39
24 0418 S16 W39	24 0951E N14 W04	24 1314 N14 W02	24 1320E N14 W06
24 1445E S04 E57	24 1447 S03 E58	24 1554E N07 W08	24 1743 S05 E54
25 0152 N14 W09	25 0224 N15 W10	25 0230 N14 W10	25 0239E N14 W09
25 0513E N15 W11	25 0720 S07 E55	25 0754 N13 W13	25 0755 N14 W12
25 0932E N15 W14	25 0940E S03 E50	25 0942E S03 E41	25 1040E N13 W14
25 1510E N14 W17	25 1525E S04 E48	25 1527 S06 E47	25 1610 S02 E36
25 1659 N14 W18	25 1703E N14 W20	25 2107 S04 E37	25 2109E S03 E41
26 0843 S06 E29	26 1301 S12 E31	26 1301E S08 E29	26 1302 S11 E31
26 1916 N13 W36	26 1917 N11 W36	26 1933 N13 W36	26 2159 N13 W38
26 2300 N10 W33	27 0335 S03 E19	27 0336 S06 E22	27 0336 S06 E22
27 0414 S02 E23	27 0415 S00 E24	27 0931 N11 W38	27 0932 N11 W37
27 1209 S07 E11	27 1210 S06 E11	27 1213E S08 E10	27 1520E S06 E09
28 0002 S07 E08	28 0008E S09 E08	28 0431E S04 E01	28 0535E S08 E05
28 0816 N01 E08	28 0944 N07 E48	28 0945 N13 E47	28 1106 S15 E09
28 1457 S13 E06	28 1531 S12 E04	28 1630E N12 W58	28 1740 S08 E01
28 1933E N13 W56	28 2012 N12 W60	28 2013E N13 W57	28 2246 N10 W60
28 2345 N15 W63	29 0132 N15 W66	29 0132 N15 W66	29 0133 N14 W64
29 0348E N13 W65	29 0601 N13 W66	29 1044E S00 W03	29 1325 S00 W06
29 1719 N01 W10	29 1722E S03 W07	29 1724E S00 W09	29 1725 N07 W69
29 2254 S06 W18	29 2303 S08 W18	30 0150E S02 W19	30 0457 S04 W20
30 0502E S05 W19	30 0956 S11 E87	30 1043E N13 W82	30 1045 S13 E56
30 1535E S15 E90	30 1619E N13 W82	30 1620 N12 W85	30 1748E S14 E87
30 2322 S07 W30			

21 0327 N13 E40	21 0332E N12 E42	
21 0730E N09 E37	21 1006 N11 E64	
22 0002 N13 E33	22 0209E N13 E31	
22 1408 S05 E86	22 1409E S03 E05	
22 2003E S06 E85	22 2146E N12 E20	
23 0305 S04 E80	23 0317E N15 E17	
23 0754E S15 W25	23 0754E S08 E76	
23 1924E N12 E10	23 1930 N11 E05	
24 0312E S13 W37	24 0414 S15 W38	
24 1414 N14 W04	24 1418E N14 W03	
25 0051 N15 W09	25 0054 N14 W09	
25 0401 S15 W53	25 0455 N14 W11	
25 0817 N13 W19	25 0930 N14 W13	
25 1108 N13 W14	25 1405E S14 E45	
25 1615E S02 E37	25 1656 N15 W18	
26 0134E S14 E41	26 0836 S05 E26	
26 1604 S14 E33	26 1605E S12 E34	
26 2244E S08 E20	26 2248E S00 E26	
27 0343 S02 E20	27 0400E S04 E21	
27 0933 N10 W35	27 1204 S08 E11	
27 2328E S06 E10	28 0002 S07 E08	
28 0538 S02 E32	28 0750 N13 W51	
28 1230 S13 E05	28 1408E N13 W54	
28 1755E S07 W03	28 1756E S07 W00	
28 2246 N13 W60	28 2246E N10 W62	
29 0218 N13 W66	29 0252 N13 W65	
29 1335E N12 W72	29 1628E N13 W72	
29 1835 N11 W69	29 1840 N14 W73	
30 0458 S06 W28	30 0459 N12 W74	
30 1046E N12 W84	30 1533 S14 E90	
30 1748E S14 E87	30 2006 S15 E89	30 2250E S14 E86

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

APRIL 1973



Observatories included in total patrol:

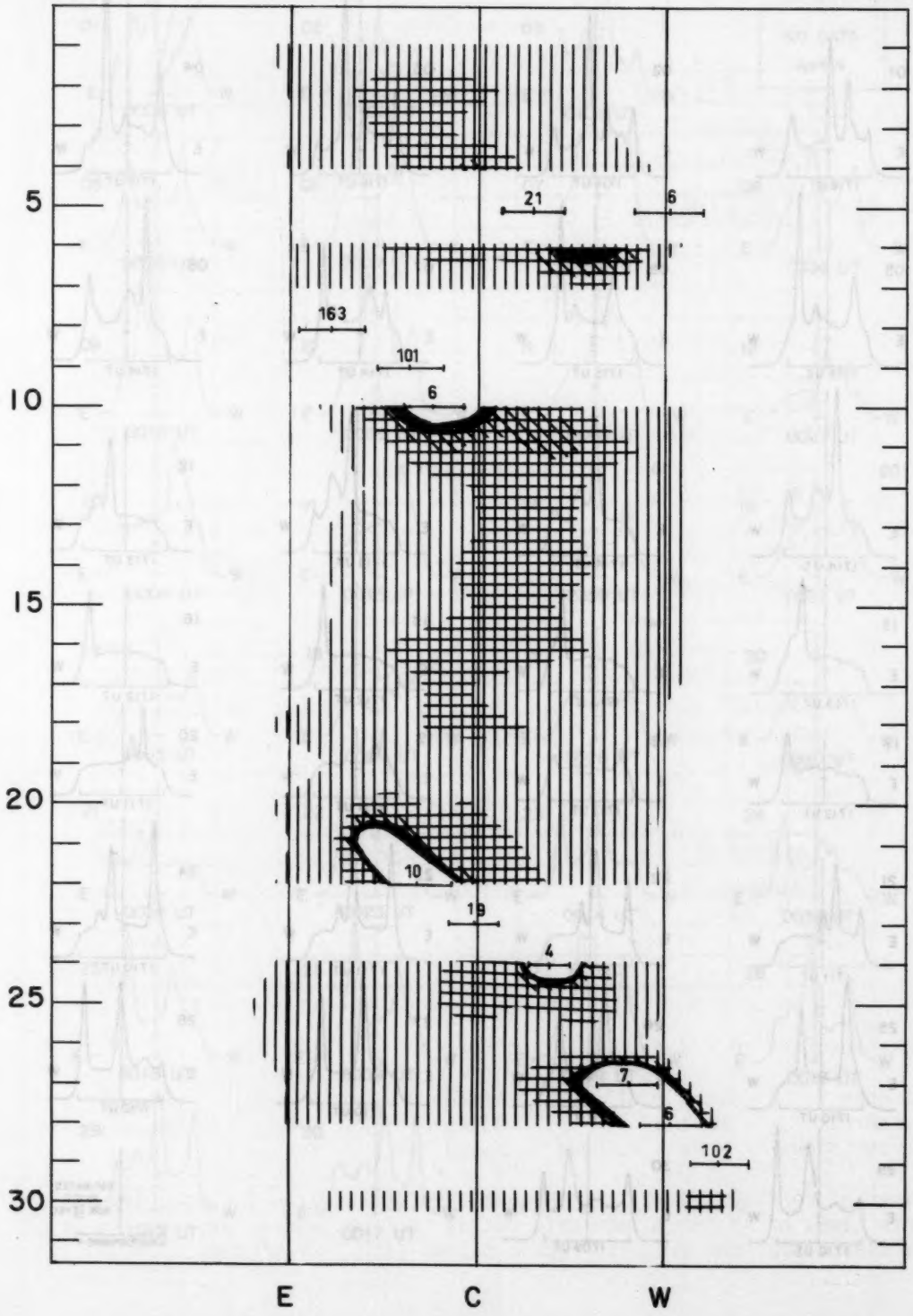
Athenes	Istanboul	Meudon	Palehua	Upice
Bucharest	Manila	Mitaka	Ramey	Wendelstein
Herstmonceux	McMath-Hulbert	Monte Mario	Tehran	

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

APRIL 1973

Nançay 169 MHz

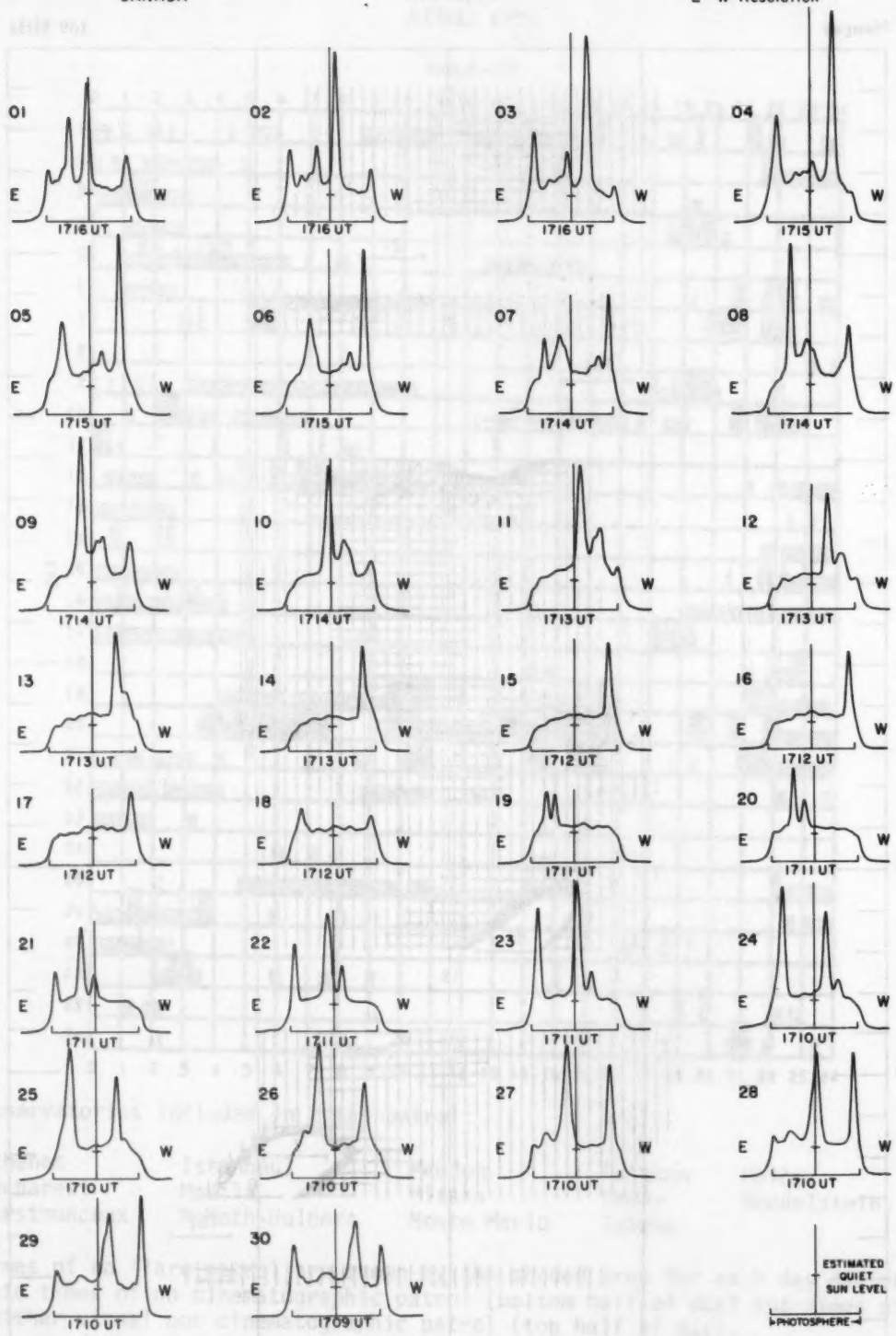


EAST - WEST SOLAR SCANS

April 1973

ALGONQUIN RADIO OBSERVATORY
CANADA

10.7 cm
Fan-Beam with 1.5 minutes of arc
E - W Resolution



EAST-WEST SOLAR SCANS

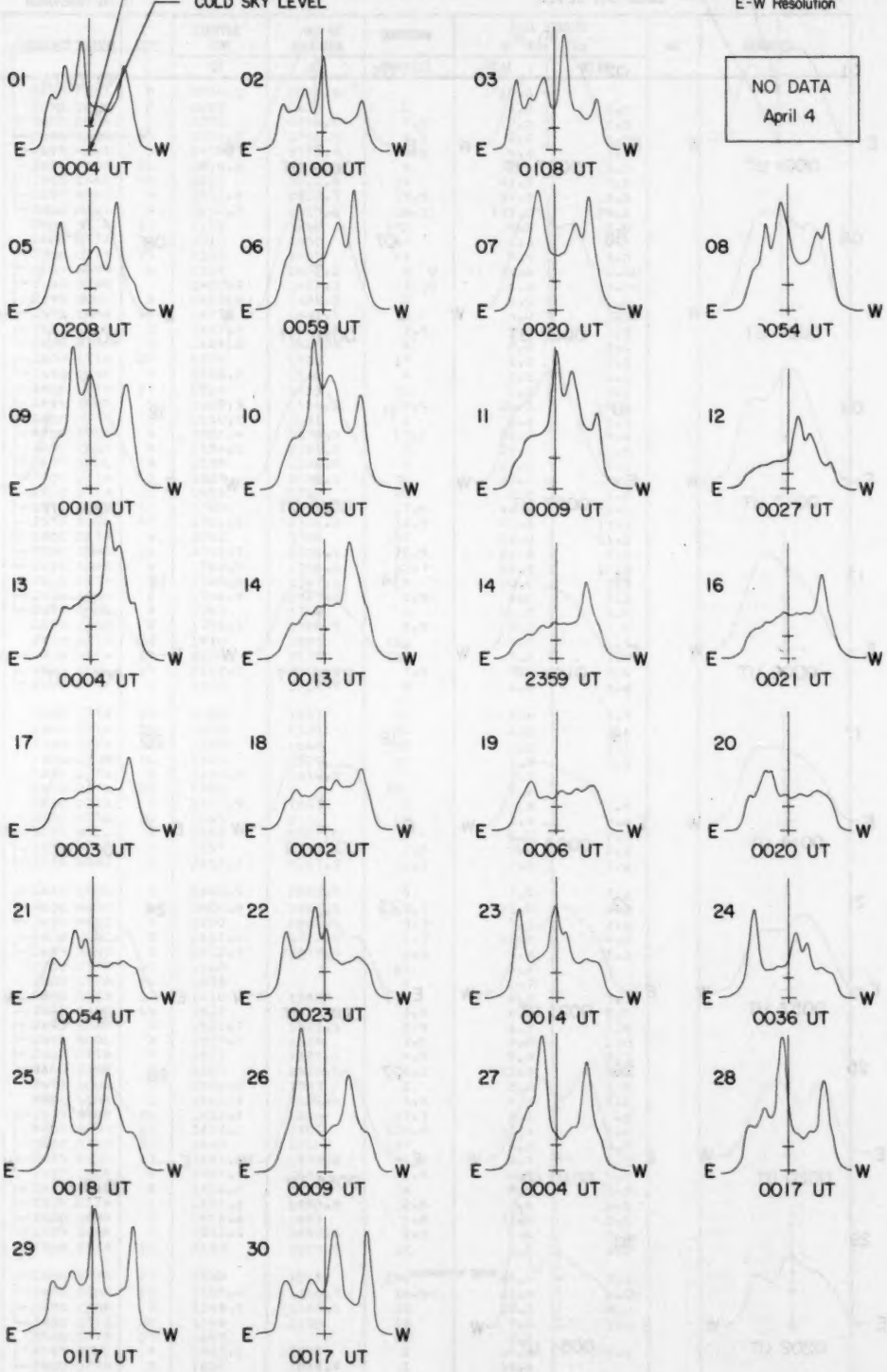
APRIL 1973

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL

COLD SKY LEVEL

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



EAST-WEST SOLAR SCANS

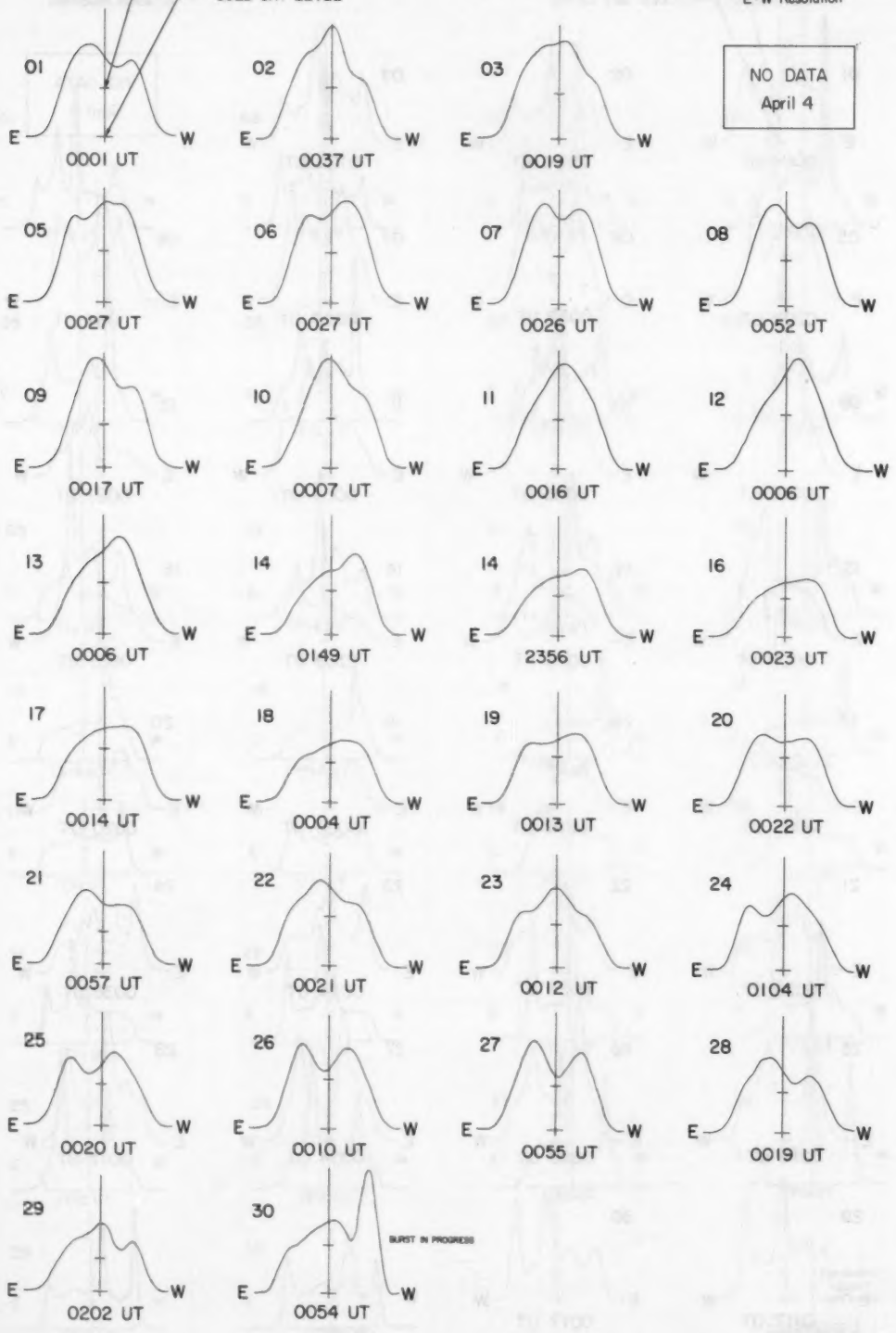
APRIL 1973

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL

COLD SKY LEVEL

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1973

APR. 1973	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
1	2695 PENT	8	0034.5	0034.5		10.0			
	2695 CRON	3	0609	0610	2	6.0	2.0		
	2695 CRON	3	0753	0754.5	3.5	7.0	2.0		
	2695 CANR	45	0754.5	0756.5	3.5	8.0	2.0		
	2695 MANI	1	0755.7	0756.3	2.6	4.6	1.2		
	2695 CRON	45	0810.5	0812.5	6	32.0	10.0		
	2695 CANR	45	0811	0812.5	14	42.0	9.0		
	2695 MANI	4	0811.8	0813.7	13.5	34.5	11.5		
	8800 MANI	4	0812.3	0813.3	16.1	113.0	29.1		
	2800 OTTA	21	1155	1215	275	4.0	2.0		
	2800 OTTA	20	1315	1330	40	1.8	1.0		
	2800 OTTA	21	1355	1405	65	4.6	2.3		
	8800 SGMR	4	1359	1402.2	9 U	14.6	6.0U		
	2695 SGMR	1	1400.9	1402.2	5.1U	5.4	2.7U		
	2695 BOUL	3	1401.5	1402.5	2	4.0	1.0		
	2695 CANR	45	1401	1401.5	5	5.0	2.0		
	2695 CANR	3	1447.5	1448.5	2.5	3.0	1.0		
	2800 OTTA	1	1448.8	1449.5	4	2.0	1.0		
	2800 OTTA	20	1505	1510	17	1.8	0.9		
	2695 CANR	3	1508.5	1510	4	3.0	1.0		
	2800 OTTA	21	1528	1533	20	4.2	2.1		
	2695 SGMR	3	1529.3	1536.2	18.4	24.1	10.0		
	2800 OTTA	1	1530.5	1531	1	2.6	1.3		
	8800 SGMR	3	1531.4	1536.5	17.5	36.7	14.4		
	2695 CANR	8	1534.5	1536.5	5	25.0	10.0		
	2695 BOUL	8	1535	1536.5	6	23.0	9.0		
	2800 OTTA	3	1535	1536.1	5	27.0	7.0		
	2800 OTTA	21	1655	1715	40	2.0	1.0		
	2695 CANR	45	1700	1705.5	17.5	46.0	15.0		
	2695 BOUL	45	1701.5	1706.5	12.5	40.0	13.0		
	2800 OTTA	4	1702	1706	12	43.0	11.2		
	8800 SGMR	20	1702.7	1706.1	22.3	21.6	8.0		
	2695 SGMR	4	1702.5	1706.1	12.7	40.7	12.0		
	2800 OTTA	3	1746.5	1747.5	5	10.0	2.5		
	2695 SGMR	2	1746.9	1747.7	3.9	8.0	2.0		
	2695 BOUL	8	1747	1748	3	11.0	4.0		
	2695 CANR	8	1755.5	1756.5	3.5	8.0	3.0		
	2800 OTTA	22	1810	1855	220	3.0	1.5		
	2800 OTTA	21	2200	2215	120	3.8	1.9		
	2695 BOUL	45	2202.5	2203.5	7.5	7.0	2.0		
	2800 OTTA	1	2202	2202.5	8	6.8	3.8		
2	2800 OTTA	20	1240	1247	35	2.4	1.7		
	2800 OTTA	20	1320	1325	90	4.8	2.4		
	2800 OTTA	21	1500	1640	180	4.8	2.4		
	2800 OTTA	20	1525	1528	25	1.8	0.9		
	2800 OTTA	8	1614.5	1614.5		1.7			
	2800 OTTA	25	1920		20	3.6			
	2800 OTTA	1	1939.5	1940	2	1.8	0.9		
	2800 OTTA	20	2045	2110	60	2.8	1.4		
	2695 BOUL	8	2357	2357.8	1	6.0	2.0		
	2695 PENT	1	2357	2357.6	1.5	5.0	2.5		
	2695 MANI	1	2357.3	2357.7	1.1	2.3	1.2		
3	2695 CRON	3	0800.5	0801.5	5	7.0	3.0		
	8800 MANI	4	0800.8	0801.5	5.7	21.0	6.3		
	2695 MANI	2	0800	0801.5	5.7	7.1	2.4		
	8800 MANI	3	0812.4	0812.9	1.7	16.8	4.2		
	2695 MANI	1	0812.3	0812.9	1.8	5.9	1.2		
	2800 OTTA	24	1140		65	5.4			
	2800 OTTA	24	1405		5	1.9			
	2800 OTTA	22	1410	1530	110	4.2	2.1		
	2695 CANR	45	1522	1522.5	3.5	6.0	2.0		
	2695 SGMR	1	1522.7	1523.3	2.8	5.7	1.6		
	2695 BOUL	3	1523.5	1524	1.5	6.0	2.0		
	2800 OTTA	2	1523	1523.5	4.5	5.8	2.7		
	8800 SGMR	3	1523	1523.5	6.2	11.8	3.2		
	2695 BOUL	3	1526.5	1527	1	2.0	1.0		
	8800 SGMR	1	1623.8	1625.6	5.4	4.4	2.0		
	2695 SGMR	20	1813.5	1821	12.3	2.1	.6		
	8800 SGMR	23	1822.1	1901	110.9	13.4	6.0		
	2800 OTTA	21	1840	1915	130	6.2	4.0		
	2695 SGMR	23	1841.6	1938.2	91.6	5.7	2.0		
	2695 CANR	8	1844.5	1846	1.5	8.0	3.0		
	2695 BOUL	8	1852.5	1853	4	9.0	3.0		
	2800 OTTA	1	1852.3	1852.8	2.5	7.6	2.6		
	8800 SGMR	3	1852.6	1853	1.9	11.0	2.5		
	2695 SGMR	1	1852.6	1852.8	2.3	4.6	1.5		
	2800 OTTA	20	2103	2105.5	12	2.0	1.0		
4	2800 OTTA	21	1130	1215	290	14.4	7.2		
	2695 SGMR	20	1139.4	1150.7	16.6U	11.8	4.0U		
	2695 CANR	3	1143.5	1149.5	11	10.0	4.0		
	2800 OTTA	20	1144	1150	13	7.0	3.4		
	2800 OTTA	24	1640		30	2.5			
	2695 BOUL	8	1838.5	1839	1	14.0	6.0		
	2800 OTTA	8	1838	1838.9	1	16.8			
	8800 SGMR	4	1838.2	1838.5	2.8	13.4	4.1		
	2695 SGMR	45	1838.2	1838.5	2	4.0	6.5		
	2695 SGMR	45		1839.9		13.6			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1973

APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2800	OTTA	8	2020.9	2021	.5	4.4	2.2		
	8800	SGMR	1	2020.8	2021.1	.8	4.8	2.4		
	2695	SGMR	1	2020.9	2021.1	.5	2.6	1.6		
	2800	OTTA	1	2130.5	2131.3	1	2.2	1.1		
	2695	BOUL	3	2131	2132	1.5	3.0	1.0		
	8800	MANI	3	2157.8U	2158.3	1 U	61.0U	21.0U		SUNRISE
	2695	MANI	3	2157.8U	2158.3	1.1U	82.0U	34.2U		SUNRISE
	8800	MANI	3	2204.8U	2205.1	.6U	77.0U	35.0U		SUNRISE
	2695	MANI	3	2204.6U	2205	1.1U	52.0U	22.8U		SUNRISE
	2695	BOUL	8	2221	2221.5	2	5.0	2.0		
	2695	PENT	20	2315	2317	60	1.6	0.8		
5	2695	MANI	1	0241.3	0241.9	1.3	3.5	1.2		
	2800	OTTA	20	1914	1917	10	1.8	0.9		
	2800	OTTA	20	1940	2035	195	3.6	1.8		
6	2695	MANI	1	0806.2	0806.4	1	4.8	2.4		
	2695	CANR	8	1545	1545.5	1.5	6.0	2.0		
	2695	BOUL	3	1547	1548	1.5	5.0	2.0		
	2800	OTTA	2	1547	1547.3	1.2	4.2	2.1		
	2695	SGMR	1	1547	1547.7	1.3	3.2	1.5		
	2800	OTTA	21	1620	1800	200	6.2	3.1		
	2695	CANR	3	1625	1626.5	2.5	5.0	2.0		
	2800	OTTA	1	1627.5	1628.7	5	3.2	1.6		
	2695	SGMR	20	1627	1629	10 U	4.4	2.5U		
	8800	SGMR	22	1734.1	1759.4	45.5	7.7	1.6		
	2695	SGMR	22	1737	1759.3	70.8	6.4	1.1		
	2695	CANR	3	1756	1757	1.5	7.0	2.0		
	2695	BOUL	3	1758.5	1759.5	1.5	5.0	2.0		
	2800	OTTA	1	1758	1759.1	2	8.2	1.4		
	2695	SGMR	46	1923.3	1923.5	1	25.2	11.0		
	2695	SGMR	46		1923.8		42.0			
7	2695	PENT	1	1653.9	1654	2	2.8	1.4		
	2800	OTTA	21	1710	1745	90	3.4	1.7		
	2800	OTTA	8	1743.8	1743.8		2.8			
	2800	OTTA	20	1904	1908	50	2.4	1.2		
	2695	BOUL	8	2220.5	2221	1	3.0	1.0		
8	2695	CANR	8	1101	1102	2	12.0	5.0		
	2695	SGMR	3	1102.5	1102.7	.6	12.0	6.0		
	2800	OTTA	22	1120	1143	70	4.2	2.4		
	8800	SGMR	2	1249.2	1249.6	1	4.4	1.5		
	2800	OTTA	8	1314.3	1314.4	.2	2.4	1.2		
	2800	OTTA	24	1320		20	2.2			
	8800	SGMR	23	1413	1444	47.7	13.2	3.5		
	2695	SGMR	23	1414.2	1417.6	45	4.8	1.2		
	2800	OTTA	21	1415	1417	65	3.4	1.7		
	2695	CANR	8	1442.5	1443.5	1.5	44.0	15.0		
	2695	BOUL	8	1443.5	1444	2	40.0	15.0		
	2800	OTTA	3	1443	1443.3	1.5	30.0	10.0		
	8800	SGMR	3	1443.1	1443.4	.5	12.3	3.1		
	2695	SGMR	3	1443	1443.4	1	36.0	9.0		
	2800	OTTA	21	1700	1735	60	2.0	1.0		
	2695	CANR	3	1736.5	1737	2.5	5.0	2.0		
	2695	SGMR	1	1736.6	1738.3	7.1	3.8	1.6		
	2695	BOUL	3	1737.5	1739	2	3.0	1.0		
	2800	OTTA	1	1737	1738.3	2	2.6	1.3		
	2800	OTTA	20	1805	2025	235	5.0	2.5		
	2695	BOUL	3	2130	2132	4	3.0	1.0		
	2695	BOUL	45	2242	2243.5	2.5	9.0	3.0		
	2800	OTTA	2	2242	2243.1	2	8.0	2.8		
	2695	PENT	24	2300		40	4.8			
9	2695	PENT	25	0019		50	11.2			
	2695	PENT	1	0020	0022	5	4.2	2.1		
	2695	BOUL	8	0034.5	0035	1.5	7.0	2.0		
	2695	PENT	1	0034.5	0034.7	1.2	3.2	1.6		
	2695	PENT	1	0048	0048.2	.5	1.6	0.8		
	2695	CRON	45	0448	0448.5	1.5	21.0	8.0		
	8800	MANI	1	0448	0449.3	5.2	8.0	2.0		
	2695	MANI	1	0448	0449.3	5.2	2.2	1.1		
	2800	OTTA	1	1206.8	1207	1	1.4	0.7		
	2695	SGMR	1	1206.9	1207.1	2.6	2.0	.5		
	2800	OTTA	4	1221	1222.5	7	101.0	18.0		
	2695	SGMR	4	1221.5	1222.4	5.5	116.0	20.0		
	8800	SGMR	4	1222.2	1222.3	2.8	59.4	10.0		
	2695	SGMR	29	1227	1227	11.7	3.8	1.3		
	2800	OTTA	29	1228		8	3.2	1.6		
	2800	OTTA	1	1251.6	1252	1	1.4	0.7		
	8800	SGMR	2	1251.7	1251.8	1.1	8.8	1.4		
	2695	SGMR	2	1251.8	1251.9	.7	2.3	.8		
	2800	OTTA	20	1310	1345	75	2.4	1.2		
	2695	SGMR	2	1431.3	1432.4	2.7	4.2	1.0		
	2800	OTTA	1	1432	1432.3	1	3.4	1.5		
	2695	BOUL	3	1542.5	1544	5.5	72.0	25.0		
	2800	OTTA	4	1542.1	1543.2	5	80.0	11.0		
	8800	SGMR	4	1542.3	1543.2	4	33.9	8.5		
	2695	SGMR	4	1542.4	1543.3	4.1	74.3	18.6		
	2800	OTTA	41	1619.8	1624	8	25.0			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1973

APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
9	2800	OTTA	1	1619.8	1620	1.5	5.8	2.0		
	8800	SGMR	45	1619.8	1620.6	10.2	13.2	3.0		
	2695	SGMR	46	1619.8	1620	7.6	5.5	5.0		
	2695	SGMR	46		1624		26.6			
	8800	SGMR	45		1623.5		3.5			
	2695	BOUL	8	1620	1620.5	1	7.0	3.0		
	2800	OTTA	4	1622.2	1624	5.5	25.0	5.0		
	2695	BOUL	8	1623	1624.5	4.5	28 .0	11.0		
	8800	SGMR	1	1659.8	1700.1	1.3	6.6	2.5		
	2800	OTTA	21	1700		220	3.0	1.8		
	2695	BOUL	8	1703	1704	1	13.0	5.0		
	2800	OTTA	3	1703	1703.5	2	13.2	4.4		
	2695	SGMR	3	1703.2	1703.5	4.2	12.7	5.0		
	2695	BOUL	3	1711.5	1712	1.5	6.0	2.0		
	2800	OTTA	1	1711.2	1711.7	1	2.0	1.0		
	8800	SGMR	4	1711.7	1713.2	2	10.6	2.5		
	2695	SGMR	1	1711.2	1711.7	1.8	2.9	1.0		
	2695	BOUL	3	1714.5	1715.5	1.5	3.0	1.0		
	8800	SGMR	4	1721.6	1722.8	2.2	13.6	3.0		
	2695	BOUL	45	1722	1723	2	10.0	3.0		
	2800	OTTA	45	1722	1722.6	2	7.8	2.6		
	2695	SGMR	2	1722	1722.7	2.2	7.8	3.0		
	2695	BOUL	3	1732.5	1733.5	1.5	5.0	2.0		
	2800	OTTA	2	1732	1732.6	2	3.8	1.7		
	2695	SGMR	1	1732.2	1732.9	2.8	4.8	2.0		
	2695	SGMR	45	1744.6	1745.9	3.9	9.7	2.5		
	2695	SGMR	45		1747.3		13.1			
	2695	BOUL	45	1745.5	1747.5	4.5	13.0	3.0		
	2800	OTTA	45	1745	1747.1	3	12.6	6.3		
	8800	SGMR	4	1745.3	1745.9	4.7	27.3	5.5		
	2800	OTTA	30	1748		55	4.2	2.1		
	2695	SGMR	29	1748.5	1754.4	28.5	1.9	1.0		
	8800	SGMR	29	1750	1754.2	22.5	4.4	2.0		
	2695	BOUL	8	1754	1754.5	1	5.0	2.0		
	2800	OTTA	1	1754	1754.1	1	3.4	1.7		
	2800	OTTA	1	1809	1809.1	1	1.4	0.7		
	8800	SGMR	3	1826.8	1826.9	.4	16.3	5.2		
	2695	BOUL	3	2030	2032.5	2.5	3.0	1.0		
	2695	BOUL	8	2036	2036.5	1	7.0	3.0		
	2695	BOUL	8	2310	2311.5	3	6.0	2.0		
	2695	PENT	1	2310.5	2310.8	1	2.8	1.4		
	8800	MANI	3	2310.4	2310.5	1.4	11.1	3.7		
	2695	MANI	1	2310.4	2310.6	2.2	3.6	1.2		
	2695	MANI	1	2315.7	2316.1	2.6	2.4	1.2		
	2695	BOUL	3	2316.5	2317.5	3	4.0	1.0		
	2695	PENT	1	2316	2317	4	2.4	1.4		
10	2695	MANI	1	0018.7	0022.1	13.7	2.4	12.0		
	2695	BOUL	3	0020	0022.5	5	6.0	2.0		
	2695	MANI	1	0047.4	0048	2.4	2.4	1.2		
	2695	MANI	4	0649.3	0649.9	7.4	18.8	2.5		
	2695	MANI	4	0750.5	0754.8	6.8	15.0	3.8		
	2800	OTTA	21	1155	1340	280	19.2	7.1		
	2800	OTTA	46	1222.5	1230.5	12.5	53.0	21.0		
	2800	OTTA		1222.5	1224.2	4	46.0			
	2800	OTTA		1226.5	1230.5	8.5	53.0			
	2695	SGMR	46	1222.9	1224.4	12.6	41.0	10.3		
	2695	SGMR	46		1230.5		46.6			
	8800	SGMR	46	1223.7	1225.4	12	276.0	69.0		
	8800	SGMR	46		1230.5		240.0			
	2695	SGMR	23	1250.6	1340.8	119.8	19.0	4.8		
	2800	OTTA	1	1251	1252.3	3	3.8	1.5		
	2800	OTTA	1	1259.5	1301	3.5	6.4	3.2		
	2695	SGMR	4	1309.9	1312.4	4.6	17.3	4.0		
	2800	OTTA	4	1310	1312.5	5	21.0	9.0		
	2695	BOUL	45	1511	1513	2	12.0	3.0		
	2695	BOUL	45	1907	1909.5	12	45.0	12.0		
	2800	OTTA	46	1907	1909.1	10.5	50.0	14.6		
	2800	OTTA		1907	1909.1	5.5	50.0			
	2800	OTTA		1912.5	1915	5	19.0			
	2695	SGMR	46	1907.2	1909.1	10.7	47.7	10.0		
	2695	SGMR	46		1915		15.3			
	8800	SGMR	4	1908.1	1909.2	12.2	113.2	25.0		
	2800	OTTA	21	2120	2155	105	4.6	2.3		
	2800	OTTA	45	2134	2136	3.5	30.0	7.5		
	2695	BOUL	45	2135.5	2136.5	2.5	30.0	8.0		
	2800	OTTA	29	2137.5		12	4.6	2.3		
	2695	PENT	1	2234	2234.3	2	3.6	1.7		
11	8800	MANI	1	0340.4	0341.4	1.9	7.2	1.8		
	2695	MANI	1	0340.4	0341	1.9	2.5	1.2		
	2800	OTTA	21	1140	1300	105	2.4	1.6		
	2800	OTTA	1	1301.9	1302.5	2.5	3.0	2.0		
	2695	SGMR	1	1301.4	1302.2	3.1	3.0	1.5		
	8800	SGMR	2	1302	1303.1	3.5	8.0	3.0		
	2800	OTTA	3	1404.2	1405.2	3.8	75.0	12.0		
	2695	BOUL	8	1405	1406.5	8	62.0	23.0		
	2800	OTTA	30	1408		70	4.0	2.0		
	2800	OTTA	20	1455	1457	17	1.2	0.6		
	2695	BOUL	3	1528.5	1529.5	2	3.0	1.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1973

APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	MEAN	INT	REMARKS
11	2800	OTTA	1	1528	1529	5	2.2	1.1		
	2800	OTTA	21	1555	1655	150	4.0	2.0		
	2695	BOUL	3	1612.5	1614	3.5	3.0	1.0		
	2800	OTTA	46	1620.5	1625	6	7.8	3.6		
	8800	SGMR	4	1620.7	1624.8	14.1	58.0	15.0		
	2695	SGMR	46	1620.5	1621.1	14.4	8.0	3.0		
	2695	SGMR	46		1625.1		9.0			
	2695	BOUL	45	1621	1625.5	7.5	9.0	3.0		
	2695	BOUL	45	1834.5	1836.5	3.5	3.0	1.0		
	2800	OTTA	21	1834		285	6.0			
	2800	OTTA	1	1834	1836	4	2.2	1.1		
	2695	BOUL	45	1841.5	1843.5	15	105.0	33.0		
	2800	OTTA	45	1841	1843	13	124.0	28.0		
	2800	OTTA		1841	1843	2.2	124.0			
	2800	OTTA		1843.2	1843.7	1.9	12.2			
	2800	OTTA		1845.1	1846	2.9	55.0			
	2800	OTTA		1848	1850	6	46.0			
	8800	SGMR	46	1842.4	1844.6	19.1	185.0	50.0		
	8800	SGMR	46		1847		128.9			
	2695	SGMR	46	1842.3	1842.8	14.7	125.0	40.0		
	2695	SGMR	46		1843.5		120.0			
	2800	OTTA	29	1854		15	4.4	2.2		
	2695	SGMR	30	1857	1857	108 U	4.0	2.0		
	8800	SGMR	29	1901.5	1901.5	15	12.3	6.1		
	2800	OTTA	40	1918.5	1932.6	15	25.6			
	2695	SGMR	40	1923.2	1932.6	10.7	22.0	11.0		
	2695	BOUL	40	1924.5	1933	8.5	26.0	4.0		
	8800	SGMR	23	1935.1	2003.4	69.9U	15.5	8.0		
	2695	SGMR	23	1944.7	2001.8	60.3U	21.4	10.0		
	2695	BOUL	45	1945	2034.5	132	103.0	42.0		
	2800	OTTA	28	1945		37	16.2			
	2695	SGMR	46	2021.9	2027.2	23.1U	84.6	25.0U		
	2695	SGMR	46		2033.6		105.0			
	2800	OTTA	46	2022	2033.8	50	110.0	40.0		
	8800	SGMR	22	2023.2	2041	21.8U	32.8	16.5U		
	2800	OTTA	29	2112		75	15.6	5.2		
	2695	PENT	1	2404	2404.2	6	5.0	2.5		
12	2695	BOUL	45	0002.5	0004	6.5	76.0	31.0		
	2695	CRON	3	0003	0004	3	5.0	2.0		
	2695	MANI	1	0003.9	0004.3	4.9	7.3	1.2		
	2800	OTTA	20	1200	1212	22	2.0	1.0		
	2800	OTTA	20	1320		90	1.6	1.0		
	2695	BOUL	45	1351.5	1357.5	28.5	20.0	5.0		
	2800	OTTA	20	1458	1502	40	1.6	0.8		
	2800	OTTA	20	1547	1548	10	1.2	0.6		
	2800	OTTA	20	1605	1620	75	1.2	0.6		
	2800	OTTA	1	2211	2212.5	3	1.2	0.6		
13	2695	CRON	3	0510	0511	2.5	7.0	3.0		
	2695	MANI	1	0510.2	0511.4	3.6	5.0	2.5		
	2800	OTTA	21	1230	1600	285	2.4	1.2		
	2800	OTTA	22	1347	1357	52	19.0	6.4		
	2695	SGMR	20	1348	1356.7	40.9	16.9	4.2		
	8800	SGMR	20	1349 U	1357.6	37.2U	12.9	3.2U		
	2800	OTTA	32	1735		87	-1.8	-0.9		
	2800	OTTA	20	1930	2020	105	1.4	0.7		
14	2800	OTTA	21	1405	1450	225	3.6	1.8		
	2695	SGMR	22	1431.1	1438.4	23.6	3.7	.9		
	8800	SGMR	22	1434.4	1447.2	25.8	12.2	3.0		
	2695	BOUL	3	1437.5	1439	2.5	5.0	2.0		
	2800	OTTA	1	1437.2	1438.2	3.5	3.0	1.0		
	2800	OTTA	1	2139.9	2140.2	1.1	5.0	2.5		
	2695	BOUL	8	2140.5	2141	1.5	5.0	2.0		
	2800	OTTA	29	2141		28	1.4	0.7		
15	2800	OTTA	20	1450	1507	70	3.4	1.4		
	2695	SGMR	1	1748.5	1749.6	2	1.3	.5		
18	2695	CANR	3	0905.5	0906	1	4.0	1.0		
	2695	CANR	45	1313.5	1314.5	3.5	4.0	1.0		
	2695	BOUL	3	1315	1315.5	1.5	5.0	2.0		
	2800	OTTA	20	1920	2015	140	1.4	0.7		
19	2800	OTTA	20	1748	1755	50	1.0	0.5		
20	2695	PENT	1	0033.6	0033.8	1	1.6	0.8		
	2695	MANI	1	0033.5	0033.7	.7	3.0	1.0		
	2800	OTTA	20	1330	1410	110	2.0	1.0		
	2800	OTTA	20	2135	2150	60	1.0	0.8		
21	2800	OTTA	32	1225	1305	95	-3.0	-1.5		
	2800	OTTA	20	1449	1501	30	1.4	0.7		
	2800	OTTA	21	1557	1603	35	1.4	0.7		
	8800	SGMR	1	1558.8	1559.7	2.1	5.3	2.0		
	2695	BOUL	8	1559	1600	3	8.0	3.0		
	2800	OTTA	1	1559	1559.6	3	6.8	3.0		
	2695	SGMR	1	1559	1600	4.8	7.6	2.0		
	2800	OTTA	20	1922	1930	16	.8	0.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1973

APR. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2800 OTTA	24	2140		15	1.6			
22	2695 CANR	3	0959	1001	3	4.0	1.0		
	2800 OTTA	24	1330		55	3.3			
	2695 CANR	3	1407	1407.5	1.5	3.0	1.0		
	8800 SGMR	3	1407.9	1408.3	2.4	11.9	2.2		
	2800 OTTA	20	1450	1511	105	7.4	2.6		
	2695 CANR	45	1457.5	1511	50	9.0	2.0		
	2695 SGMR	20	1503.8	1511.5	25.3	6.6	2.2		
	2695 BOUL		1510.5	1511.5	2.5	3 4.0	1.0		
	2695 SGMR	20	1618.6	1621.6	11.4	1.9	.9		
	2695 BOUL	45	1630	1633.5	19	14.0	6.0		
	2695 BOUL	3	1707.5	1608	1.5	4.0	1.0		
	2695 SGMR	20	1741.6	1745	11.9	2.9	1.3		
	2695 CANR	45	1818.5	1833	30	28.0	6.0		
	2695 BOUL	45	1820	1825.5	8	10.0	3.0		
	2800 OTTA	46	1820	1833	32	27.0	9.4		
	2695 SGMR	22	1820	1833.2	41.7	30.5	10.0		
	8800 SGMR	20	1832	1836	22.7	8.8	4.0		
	2800 OTTA	20	2010	2045	85	2.4	1.2		
	2800 OTTA	4	2144	2151	25	81.0	12.0		
	2695 BOUL	45	2145	2151	24.5	60.0	10.0		
	8800 MANI	3	2150.6U	2150.8	.5	107.0U	42.7U		
	2695 MANI	3	2150.3U	2150.8	1 U	118.0U	34.5U		
	2800 OTTA	31	2209	2230	55	-3.4	-1.7		
	2695 PENT	20	2330	2425	120	3.0	1.5		
23	2800 OTTA	1	0130.5	0131	1.5	5.2	2.6		
	2695 SGMR	20	1211.9	1221.5	22.6	3.6	1.5		
	2695 SGMR	20	1330.1	1339.2	14.9	5.2	2.0		
	2800 OTTA	21	1337	1342	11	1.2	0.6		
	2800 OTTA	1	1338	1339	2	3.6	1.4		
	2695 CANR	3	1338	1339	2	3.0	1.0		
	8800 SGMR	1	1338.8	1339.5	4.9	3.4	1.5		
	2695 BOUL	3	1339	1339.5	1.5	4.0	1.0		
	2800 OTTA	21	1640	1708	155	4.2	2.1		
	2695 SGMR	1	1738.5	1741.5	9.5	6.3	3.1		
	2695 BOUL	3	1740	1742	4.5	6.0	2.0		
	2800 OTTA	1	1740.5	1741.5	3	4.8	2.8		
	2695 CANR	45	1740	1741.5	3	6.0	2.0		
	2800 OTTA	29	1743.5		10	1.6	0.8		
	2800 OTTA	20	1940	2010	80	2.4	1.2		
	8800 SGMR	3	2054.4	2054.6	.7	23.6	7.9		
	2800 OTTA	21	2150	2215	110	1.8	0.9		
	2695 BOUL	21	2254.5	2257	8	6.0	2.0		
	2695 PENT	1	2254	2256.5	6	5.2	2.6		
24	2695 CANR	3	0733.5	0735	3.5	3.0	1.0		
	2800 OTTA	21	1155	1230	125	2.6	1.6		
	2695 BOUL	45	1314	1317	3.5	7.0	2.0		
	2800 OTTA	20	1316 E	1317	23 D	5.8			
	2800 OTTA	21	1405	1440	185	5.8	2.6		
	2695 BOUL	45	1411.5	1413.5	10.5	311.0	108.0		
	2800 OTTA	4	1411	1412.5	5	308.0	39.0		
	2695 CANR	8	1411.5	1414	9.5	124.0	55.0		
	8800 SGMR	4	1411.4	1412.5	4.6	266.0	55.0		
	2695 SGMR	4	1411.2	1412.5	5.8	318.0	64.0		
	2800 OTTA	29	1416		9	8.8	3.0		
	8800 SGMR	30	1416	1416	53.5	3.7	1.8		
	2695 SGMR	30	1417	1417	58.6	8.4	4.0		
	2695 CANR	45	1426.5	1434	12.5	32.0	10.0		
	2695 BOUL	45	1428	1434	11	39.0	12.0		
	2695 SGMR	22	1428.7	1433.5	29.3	44.2	20.0		
	2800 OTTA	4	1429.5	1433.3	10	40.0	13.0		
	8800 SGMR	20	1431.2	1433.5	22	13.4	6.0		
	2695 BOUL	3	1442.5	1445.5	4	11.0	4.0		
	2695 CANR	45	1442.5	1444.5	6	5.0	2.0		
	2800 OTTA	1	1443.5	1445.1	4	9.8	3.3		
	8800 SGMR	22	1552.7	1559.4	16.5	16.5	6.0		
	2800 OTTA	1	1553	1553.7	3	4.6	1.6		
	2695 CANR	3	1553	1554	2	4.0	1.0		
	2695 SGMR	2	1553.1	1554.1	8.1	3.7	1.0		
	2695 BOUL	3	1653.5	1654	1.5	6.0	2.0		
	2800 OTTA	21	1725	1745	40	1.8	0.9		
	2800 OTTA	1	1742.5	1744	3.5	8.2	2.1		
	2695 SGMR	1	1742.9	1744	2.4	7.1	3.0		
	2695 BOUL	8	1743	1744	2.5	9.0	3.0		
	2800 OTTA	21	1918	1935	52	7.4	3.7		
	2695 SGMR	46	1921.5	1925	25.7	24.6	18.0		
	2695 SGMR	46		1927.2		60.9			
	2695 BOUL	45	1922	1928	26.5	57.0	13.0		
	2800 OTTA	46	1922.8	1927.2	10	59.0	13.5		
	8800 SGMR	4	1922.8	1927.2	19.4	33.3	10.1		
	2800 OTTA	20	2224	2225.5	11	2.0	1.0		
	2695 BOUL	3	2225	2225.5	3.5	3.0	1.0		
	2695 CRON	3	2252	2256	9	7.0	3.0		
25	2695 CRON	3	0418	0424	15.5	74.0	26.0		
	2695 MANI	4	0418.9	0424.4	13.6	122.0	28.8		
	8800 MANI	4	0421.2	0424.5	18.5	24.8	9.1		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1973

APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2695	CANR	3	1044.5	1046	2.5	4.0	1.0		
	2800	OTTA	20	1208	1210	140	3.8	1.9		
	2800	OTTA	45	1526	1527	19	4.0	1.4		
	2695	CANR	3	1537 U	1537.5U	3.5	5.0	2.0		
	2800	OTTA	21	1555	1630	100	3.8	1.9		
	2695	SGMR	2	1659.9	1700.4	1.1U	7.0	2.8U		
	2695	BOUL	8	1700	1700.5	1	6.0	2.0		
	2695	PENT	1	1700	1700.4	1	6.0	2.0		
	2695	CANR	8	1718	1718.5	1	9.0	4.0		
	2800	OTTA	22	2105	2106	35	2.0	1.0		
26	8800	MANI	20	0631.4	0639.4	12.3	17.5	5.0		
	2695	CRON	3	0635	0637	4.5	5.0	2.0		
	2695	MANI	1	0648.9	0650.6	4.1	7.5	1.5		
	8800	MANI	1	0649.4	0650.5	2.7	17.5	2.5		
	2695	CRON	3	0846.5	0847	1.5	6.0	2.0		
	2695	BOUL	3	1301.5	1302	1.5	9.0	3.0		
	2800	OTTA	1	1301	1301.5	1	9.0	4.5		
	8800	SGMR	1	1301.5	1301.6	1.5	6.2	3.1		
	2695	SGMR	1	1301.3	1301.6	5.2	8.2	3.8		
	2695	CANR	8	1302	1303	2	11.0	4.0		
	2800	OTTA	20	1405	1430	85	1.8	0.9		
	2800	OTTA	20	1600	1635	155	1.4	0.9		
	2800	OTTA	21	1900	2005	135	14.8	7.4		
	2695	BOUL	3	1930.5	1931.5	2	3.0	1.0		
	2800	OTTA	45	1936	1944	11	5.0	2.3		
	2695	BOUL	45	1942.5	1944	2.5	5.0	2.0		
	2695	BOUL	3	1954.5	1955.5	3	7.0	3.0		
	2800	OTTA	45	1954	1958.8	7.5	14.6	3.6		
	2695	SGMR	46	1954.3	1955.2	7.2	8.2	3.3		
	2695	SGMR	46		1959		13.2			
	2695	BOUL	8	1957.5	1959	2	14.0	5.0		
	8800	SGMR	3	1958.4	1958.8	.9	31.4	7.8		
	2695	SGMR	29	2001.5	2001.5	14.6	2.0	.5		
	2800	OTTA	20	2125	2200	55	2.0	1.0		
	8800	MANI	1	2218	2218.8	2.1	7.2	2.4		
	2695	MANI	1	2218.1	2218.7	1.8	5.8	2.3		
	2695	PENT	20	2230	2305	60	3.0	1.5		
	2695	MANI	1	2303.2	2305.7	5.3	2.3	1.2		
	2695	BOUL	3	2305	2306	2	4.0	1.0		
27	2695	PENT	1	0117.9	0118	1	1.0	0.5		
	2695	MANI	1	0117.5	0118.1	.9	3.5	1.2		
	2695	CANR	45	1013	1014	13	14.0	5.0		
	2800	OTTA	20	1200	1417	270	5.0	2.7		
	2800	OTTA	20	1700	1955	220	2.8	1.8		
	2800	OTTA	20	2100	2135	80	1.4	0.7		
28	2800	OTTA	20	1330	1530	165	3.6	1.8		
	2800	OTTA	21	1715	1745	105	4.6	2.0		
	2800	OTTA	1	1741.8	1743	2	3.0	1.5		
	8800	SGMR	20	1741.7	1756.5	20.8	6.7	3.0		
	2695	BOUL	3	1742	1743.5	2	4.0	1.0		
	2695	SGMR	2	1742.1	1743.3	5.8	2.4	1.0		
	2695	CANR	3	1743.5	1744.5	1.5	4.0	1.0		
	2695	SGMR	20	1757.7	1804.3	17.7	2.4	1.2		
	8800	SGMR	20	1804	1806.5	14.5	5.6	2.7		
	2695	SGMR	1	1858	1859.8	2.5	1.6	.8		
	8800	SGMR	3	1859.4	1859.7	3.1	19.0	4.8		
	2800	OTTA	20	1923	1928	10	1.6	0.8		
	2695	SGMR	1	1923.4	1928.2	9.9	2.6	1.3		
	8800	SGMR	20	1925	1928.2	12	8.4	4.2		
	8800	SGMR	4	2011.1	2012.9	4.9	115.0	28.8		
	2695	SGMR	2	2011.2	2015.8	7.3	2.0	1.0		
	8800	SGMR	30	2016	2016	20.5	11.2	5.5		
	2800	OTTA	1	2021.5	2022.1	1	1.0	0.5		
	2695	BOUL	3	2022.5	2023	1	3.0	1.0		
	2695	SGMR	20	2023	2030.7	17.2	6.6	3.3		
	2695	BOUL	3	2030.5	2031	1	2.0	1.0		
	2800	OTTA	1	2030	2030.5	1	1.6	0.8		
	8800	SGMR	1	2030.2	2030.5	.8	3.9	1.9		
	2800	OTTA	21	2035	2132	130	3.6	1.8		
	2695	BOUL	45	2129.5	2131	6	7.0	2.0		
	2800	OTTA	1	2130.2	2131	1.5	3.0	1.5		
	2800	OTTA	1	2133.7	2134	1.5	1.4	0.7		
29	2695	PENT	25	0105		40	3.0			
	2695	MANI	22	0128.8	0135.4	14.9	15.2	4.8		
	8800	MANI	4	0129.1	0134	13 U	25.2	3.9U		RFI
	2695	CRON	3	0131.5	0135	7	12.0	5.0		
	2695	PENT	2	0134	0135.5	5	6.2	3.4		
	2695	MANI	1	0415.5	0416.4	1.9	9.5	1.9		
	8800	MANI	4	0624.4	0629.5	21.5	255.0	68.0		
	2695	CRON	45	0626	0629	8.5	61.0	11.0		
	2695	MANI	40	0626.8	0629.4	17.2	80.0	18.5		
	2695	CANR	3	0724.5	0725	1.5	7.0	2.0		
	8800	SGMR	46	1002.2	1003	8.4	36.5	47.0		
	8800	SGMR	46		1005.5		187.0			
	2695	SGMR	46	1002.2	1003.2	10.2	12.3	17.6		
	2695	SGMR	46		1005.7		88.1			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1973

APR. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
29	2695	CANR	45	1003	1018.5	70	194.0	18.0		
	8800	SGMR	46	1016.5	1018.3	20.1	142.0	28.0		
	8800	SGMR	46		1021.4		79.8			
	2695	SGMR	46	1017.1	1018.3	19.8	154.0	15.0		
	2695	SGMR	46		1021.6		21.8			
	2695	SGMR	22	1042.9	1055.4	39.2	50.0	25.0		
	8800	SGMR	22	1049	1054.6	33	74.8	37.0		
	2800	OTTA	46	1050	1055	34	58.0	20.0		
	2800	OTTA	30	1124		305	7.8	3.9		
	2800	OTTA	20	1540	1545	50	3.2	1.6		
	2695	BOUL	21	1541.5	1546	24.5	6.0	2.0		
	2695	CANR	3	1544	1546.5	8.5	4.0	1.0		
	2800	OTTA	21	1637	1755	225	2.8	1.6		
	2695	PENT	1	1648.5	1649	1	1.2	0.6		
	2695	BOUL	8	1839	1840	2	7.0	3.0		
	2800	OTTA	45	1839	1844.3	11	8.2	5.2		
	8800	SGMR	4	1839	1842.6	9.4	34.1	13.8		
	2695	SGMR	1	1839	1842.6	11.8	9.6	4.4		
	2695	BOUL	45	1842	1843.5	22.5	8.0	2.0		
	2695	BOUL	45	1842	1844	22.5	8.0	2.0		
	2800	OTTA	29	1850		50	2.0	1.0		
	2695	BOUL	47	2052.5	2121.5	131	2551.0	248.0		
	2800	OTTA	47	2054	2120	96	1760.0	715.0		
	8800	SGMR	47	2055.7	2105.6	64.3U	11897.0	900.0		
	8800	SGMR	47		2119.9		4823.0			
	2695	SGMR	47	2056.7	2059.8	63.3U	1215.0	120.0		
	2695	MANI	47	2141.6E	2212.6	57.5D	28000.0	768.0D		SUNRISE
	8800	MANI	40	2142 E		82.2D	---.-	---.-		SUNRISE
	2800	OTTA	30	2230		165	15.2	7.0		
	2695	MANI	23	2241.2	2248	43.2	23.1	1.8		
	2800	OTTA	46	2246	2247	5.5	17.0	4.2		
	2800	OTTA	4	2253.5	2254.3	2.5	92.0	23.0		
	2695	MANI	40	2254	2254.3	1.3	240.0	35.6		
	2695	BOUL	45	2351.5	2345.5	19.5	76.0	32.0		
	2695	BOUL	45	2351.5	2355.5	19.5	76.0	32.0		
	2800	OTTA	4	2351.8	2355	15	71.0	20.0		
	2695	CRON	45	2351	2354	19.5	64.0	22.0		
	2695	MANI	40	2351.2	2354	23.6	85.0	17.8		
30	2695	BOUL	3	0049	0049.5	2	5.0	2.0		
	2695	MANI	22	0120.2	0149.7	42	8.9	4.5		
	2695	CRON	3	0147.5	0149.5	3.5	7.0	3.0		
	2695	MANI	40	0217.8	0321.3	97.9	125.0	26.7		
	2695	CRON	45	0222	0228	12.5	53.0	17.0		
	2695	CRON	8	0241	0241.5	1	18.0	5.0		
	2695	CRON	45	0247.5	0322.5	71	104.0	25.0		
	2695	CRON	45	0549	0556	70.5	32.0	7.0		
	2695	MANI	4	0551.2	0554.9	21.9	34.7	8.9		
	8800	MANI	4	0553	0604.9	25.4	40.4	13.4		
	2800	OTTA	21	1250	1400	330	3.0	1.8		
	2695	BOUL	45	1359.5	1402.5	6	6.0	2.0		
	2800	OTTA	1	1401	1402	2	2.6	1.3		
	2695	BOUL	45	1652.5	1655	8	10.0	3.0		
	8800	SGMR	45	1727.1	1728.5	15.8	62.2	24.1		
	8800	SGMR	45		1729.4		62.2			
	8800	SGMR	4	1748.5	1750.2	5	28.1	10.2		
	2800	OTTA	22	1820	1940	245	3.2	1.8		
	8800	SGMR	3	1837.8	1838.5	5.7	11.4	4.5		
	8800	SGMR	46	2252	2253.9	10.2	370.0	70.0		
	8800	SGMR	46		2256.1		540.0			
	8800	MANI	46	2252.2	2256.3	26.2	352.0	70.0		
	2800	OTTA	28	2253	2254.5	2.2	6.6	3.3		
	2695	MANI	4	2253.4	2256.4	25.3	72.0	27.9		
	2695	BOUL	3	2254.5	2257.5	12	6.2	27.0		
	2695	SGMR	4	2254.4	2256.7	8	74.7	10.0		
	2800	OTTA	3	2255.2	2256.5	9.8	74.0	30.0		
	2800	OTTA	29	2305		140	12.0	3.6		

Observatories:

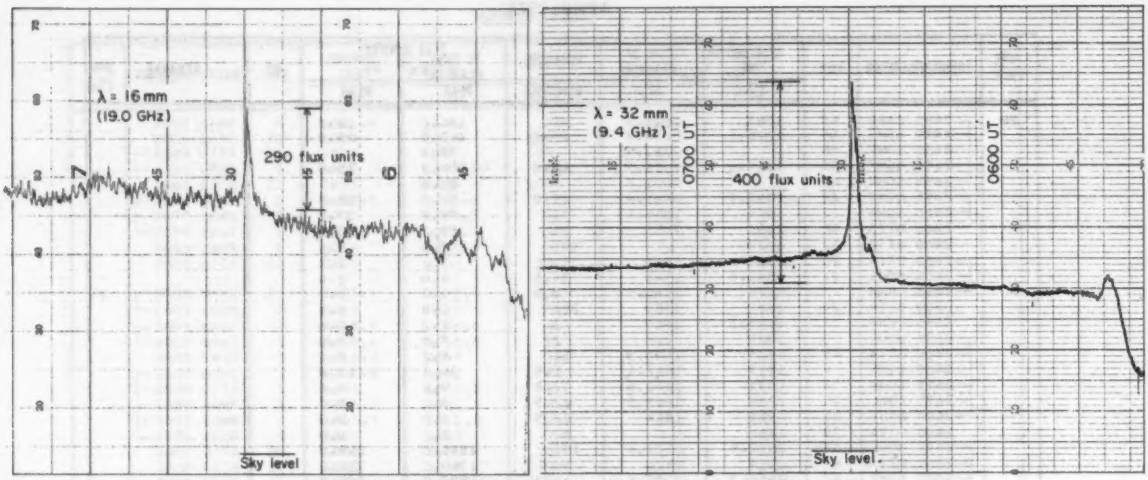
BOUL = Boulder CRON = Carnarvon OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
CANR = Canary Islands (1-8, 17-20, 22-29) MANI = Manila

Explanation of Type Code:

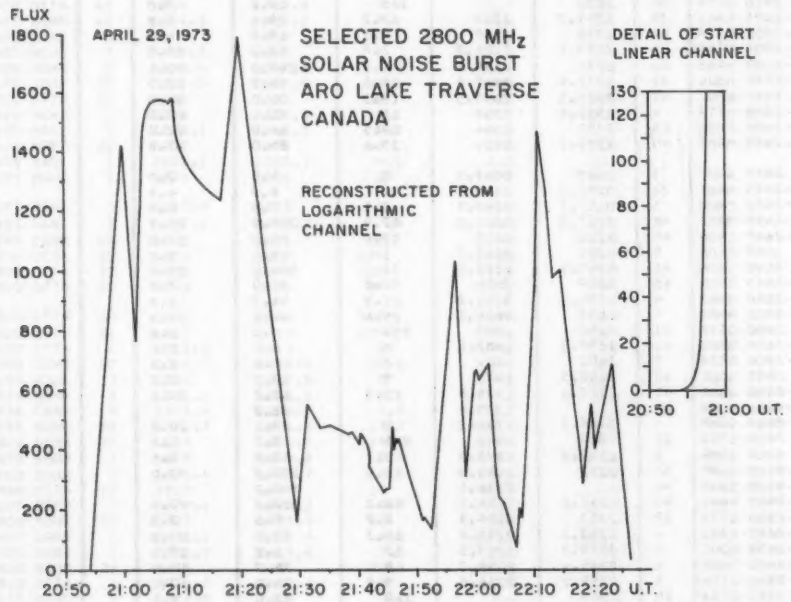
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

SELECTED SOLAR NOISE BURSTS

29 APRIL 1973



RADIO BURST OBSERVED ON 29 APRIL, 1973 AT SLOUGH, U.K.



PIONEER IX

APRIL 1973

DATE Apr. 1973	TIME (Z)	ESP (°)	SOLAR WIND[1]				IP E-FIELD[2]	IP MAGNETIC FIELD[3]			COSMIC RAY PROTONS[4] (particles/sec)	
			U_{H^+} (KM/SEC)	N_{H^+} (H^+/CC)	T_{H^+} (x10^6°K)	TAU (DAYS)	400 Hz (mv)	/B/ (GAMMA)	ϕ (°)	CONDITION	>13.9 Mev	>40 Mev
1												
2												
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4												
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26	2100	+002.1	636	1.07	0.23	+0.895	0.113	6.5	331	Very Quiet	5.4	.943
27												
28												
29												
30												

NOTE: Pioneer 9 Inferior Conjunction (syzygy) occurred on 29 April 1973.

[1] Wolfe - NASA/ARC
[2] Scarfe - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

MARCH 1973 DATA

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

MARCH 1, 1973 (P=-21.55, B_o=-7.22, L_o=144.41)

NASA GSFC
OSO-7

X-RAY

Np

E — NO DATA — W

Sp

COUNT =
ROLL =
P-TH =

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E — W

Note:
For several months beginning with December 1972 no 8.6 mm observations will be made at Prospect Hill. Repair and calibration of equipment are in progress.

Sp

Contours in Intervals of 200° K

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

30 Mar 73

E — NO DATA — W

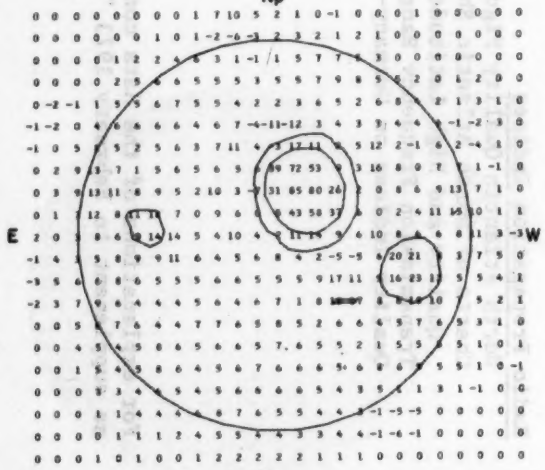
Sp

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np



E — W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

E — NO DATA — W

S

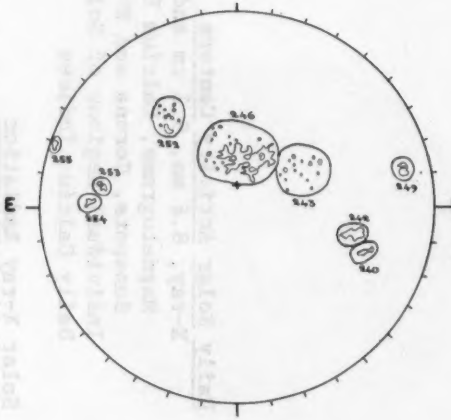
02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

Np



E — W

Sp

1420 UT

FAIR	M
42 - 1000	-3.0
46 - 3700	-3.5
49 - 0700	-3.0
55 - 0600	-2.5

BOULDER

Np

Hα

E — W

Sp

BOULDER

Np

E — W

Sp

SUNSPOTS

Np

E — W

Sp

20-21 UT
Brightness Unit 5,000° K

02-03 UT
Brightness Unit 1,700° K

1420 UT

BOULDER
01

Np

Hα

E

W

Sp

1603 UT

BOULDER

Np

SUNSPOTS

255

249

244A

242

E

W

CORONA

SACRAMENTO PEAK

1620 UT

Sp

NRL
OSO-7

TV SCAN DIRECTION

Np

WHITE-LIGHT
CORONA

SHADOW AREA CAUSED BY OCCULTER SUPPORT

E

W

TWO DIAMETRAL STREAKS, ALWAYS AT 90° TO SCAN DIRECTION

1748 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A

E

W

COUNT = 51576
ROLL = 66.8°
P-TH = 0.63

0248 UT

Sp

NRL
OSO-7

Np

171-630A

E

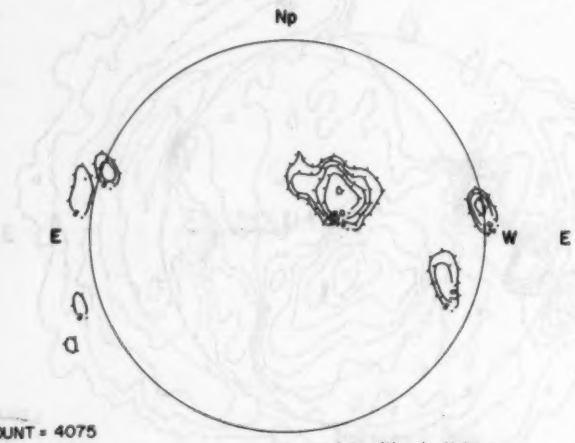
W

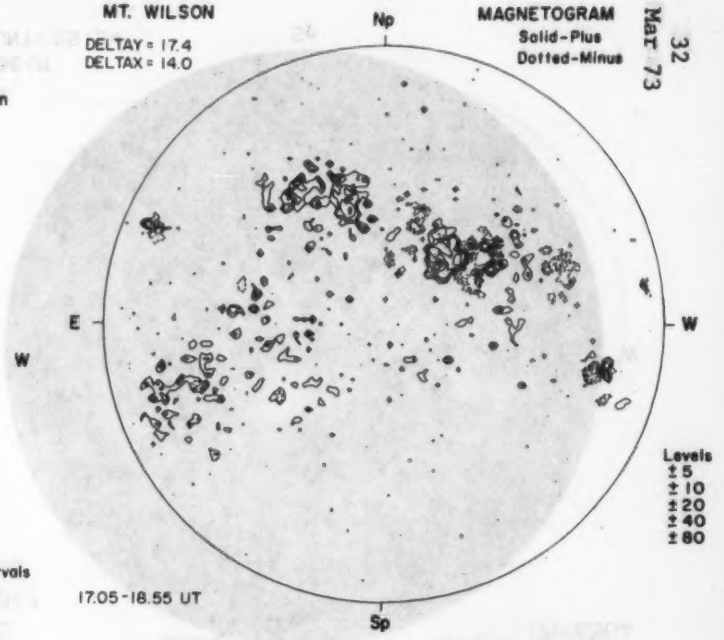
0236 UT
COUNT = 29134

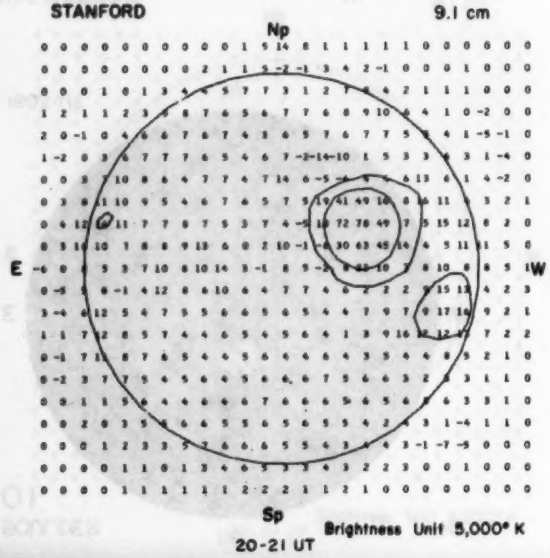
Sp

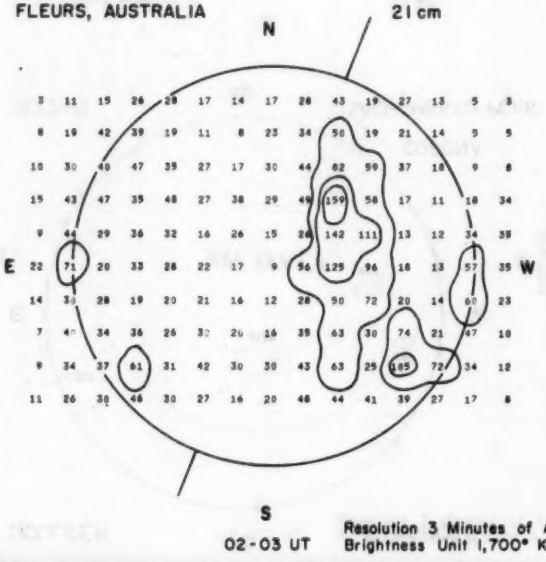
Note: The aperature used for March 1-7, 14 & 16 was 20x20 arcsec and for March 8-13, 15, 17-31 was 60x20 arcsec.

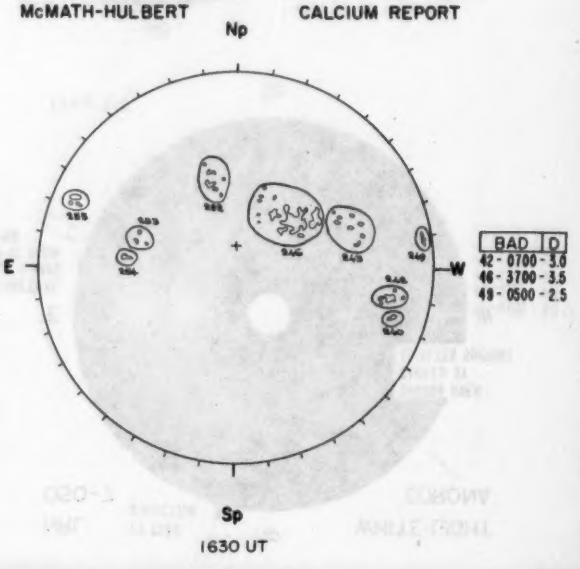
MARCH 2, 1973 (P=-21.80, B_o=-7.23, L_o=131.23)











20-21 UT

Brightness Unit 5,000° K

02-03 UT

Resolution 5 Minutes of Arc

Brightness Unit 1,700° K

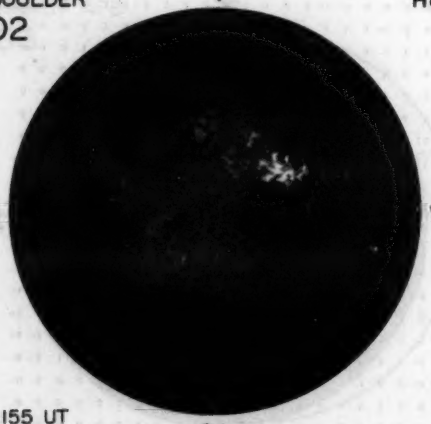
1630 UT

BOULDER

02

Np

Hα



E

W

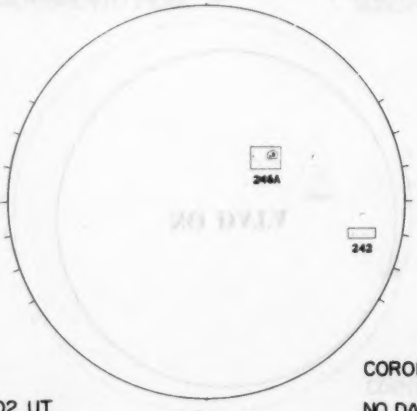
2155 UT

Sp

SACRAMENTO PEAK

Np

SUNSPOTS



E

W

1502 UT

Sp

CORONA

NO DATA

NRL

OSO-7

Np

WHITE-LIGHT

CORONA

E

W

1540 UT

Sp

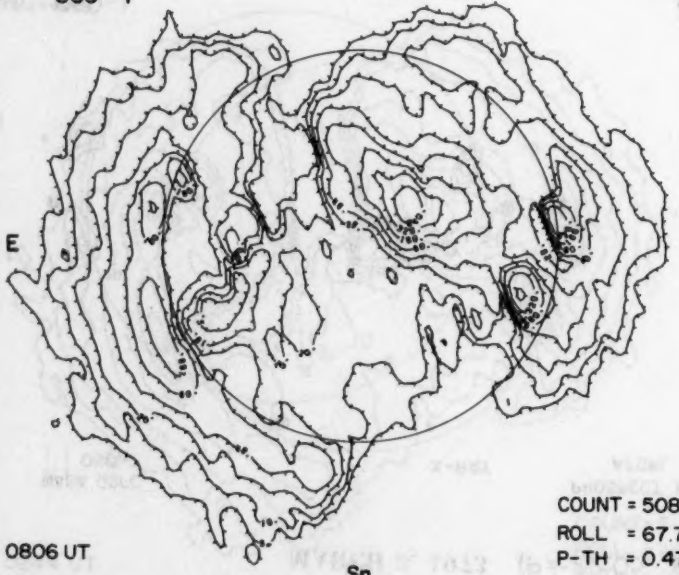
Np

NASA GSFC

OSO-7

FE XV

284A



E

W

COUNT = 50831

ROLL = 67.7°

P-TH = 0.47

0806 UT

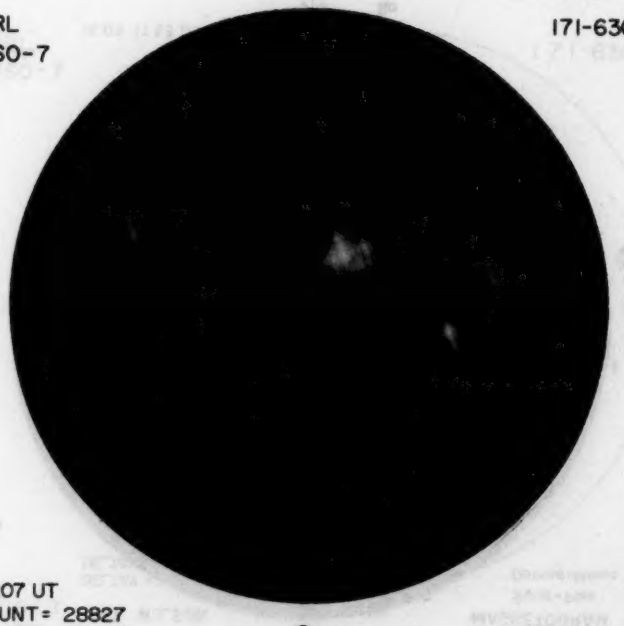
Sp

Np

NRL

OSO-7

171-630A



E

W

0207 UT

COUNT = 28827

Sp

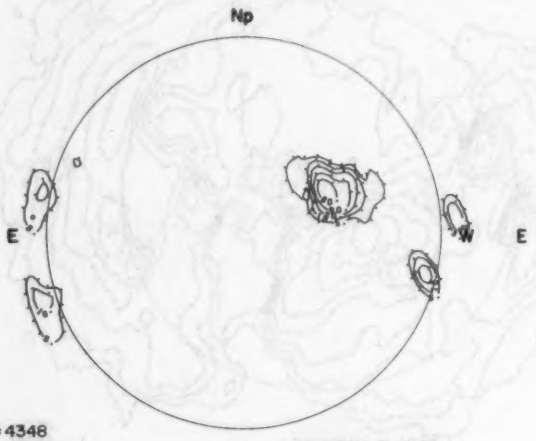
33

Mar 73

MARCH 3, 1973 (P=-22.05, B_o=-7.24, L_o=118.06)

NASA GSFC
OSO-7

X-RAY



COUNT = 4348
ROLL = 68.1°
P-TH = 0.37

0219 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

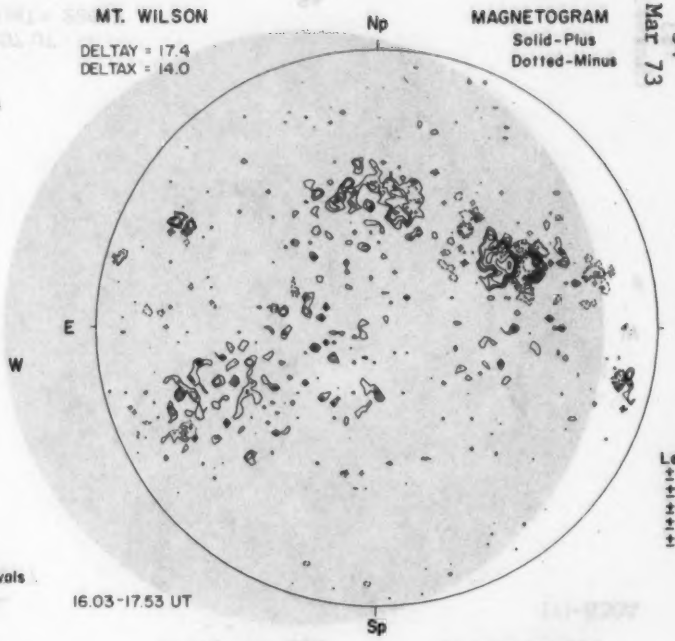
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

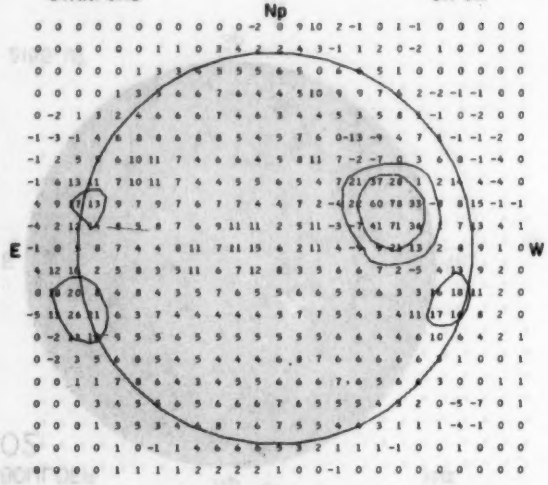


Levels
±5
±10
±20
±40
±80

16.03-17.53 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA

GOOD	GD
58-3327	---
55-1057	---
56-6356	---
61-2069	---

0845 UT

Sp
20-21 UT
Brightness Unit 5,000° K

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

0845 UT

RAMEY AFB
03

Np

Hα

E W

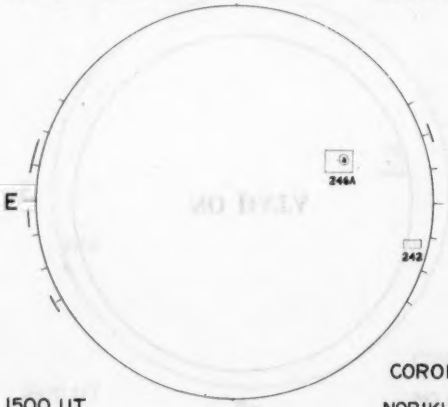
1212 UT

Sp

SACRAMENTO PEAK

Np

SUNSPOTS



E W

1500 UT

Sp

CORONA
NORIKURA

NRL
OSO-7

WHITE-LIGHT
CORONA

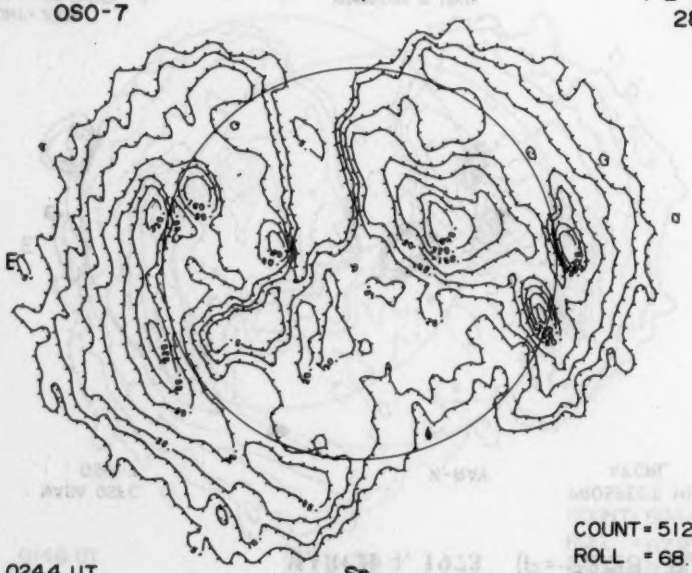
E W

2204 UT

Sp

NASA GSFC
OSO-7

Np



E W

0244 UT

Sp

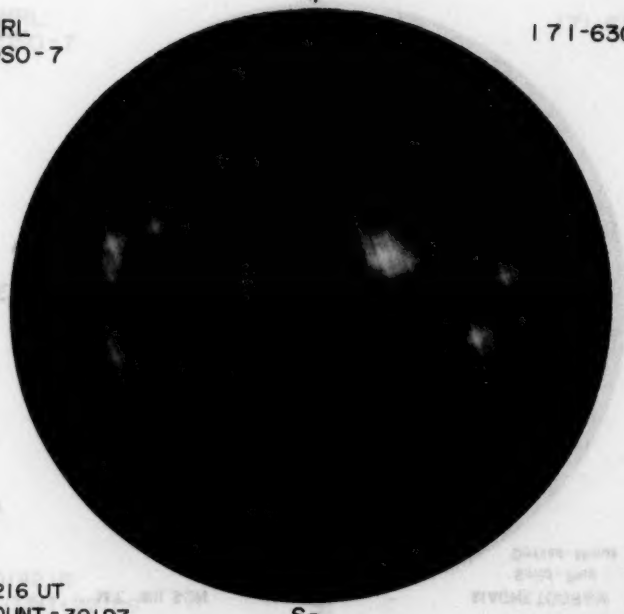
FE XV
284 A

COUNT = 51219
ROLL = 68.1°
P-TH = 0.37

NRL
OSO-7

Np

171-630A



E W

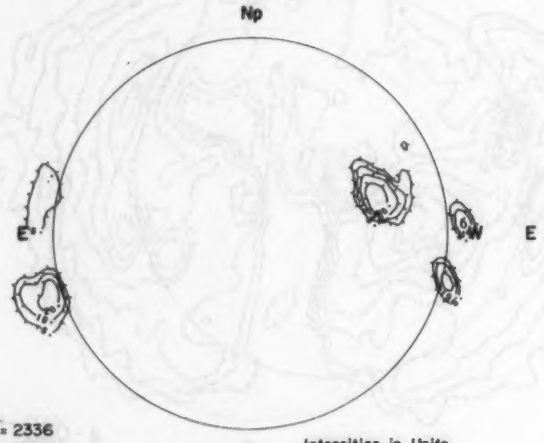
0216 UT
COUNT = 30197

Sp

35
Mar 73

MARCH 4, 1973 (P=-22.28, B_o=-7.25, L_o=104.89)

NASA GSFC
OSO-7
X-RAY



COUNT = 2336
ROLL = 67.9°
P-TH = 0.25

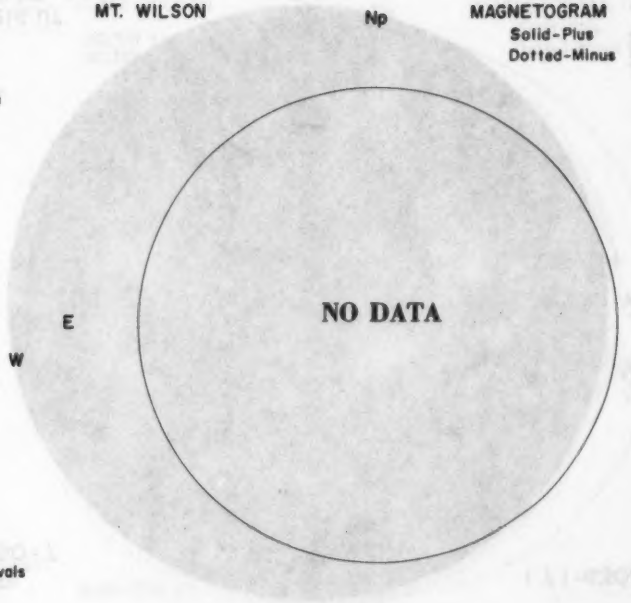
0146 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm

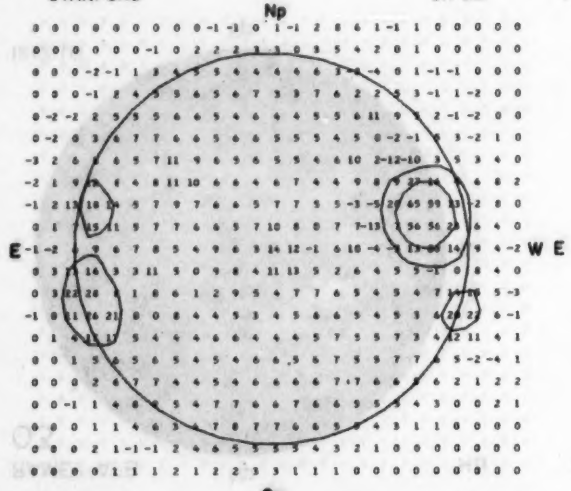
Contours in Intervals of 200° K

MT. WILSON
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD
9.1 cm



20-21 UT

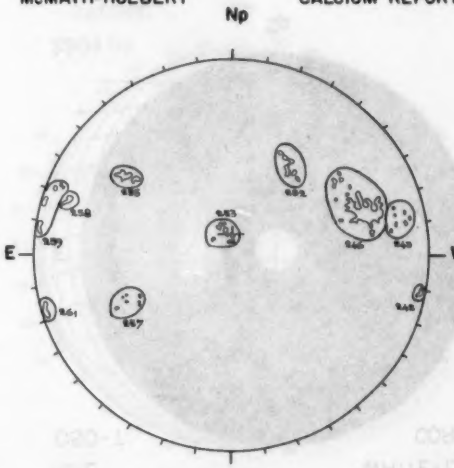
Brightness Unit 5,000° K

FLEURS, AUSTRALIA
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT
CALCIUM REPORT

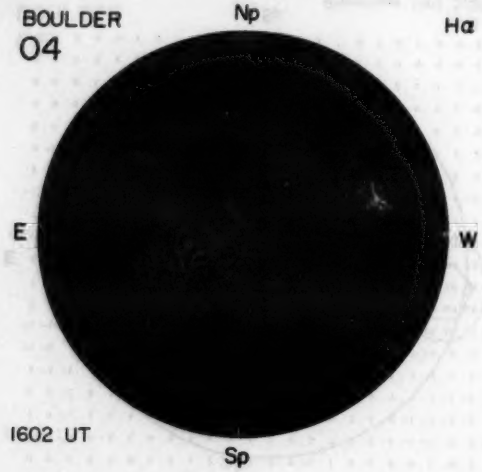


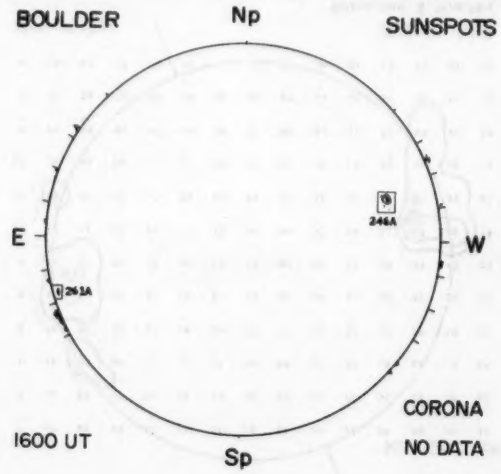
FAIR	D
42 - 0500 - 2.5	
46 - 3500 - 3.5	
55 - 0800 - 2.5	
61 - 0800 - 2.5	

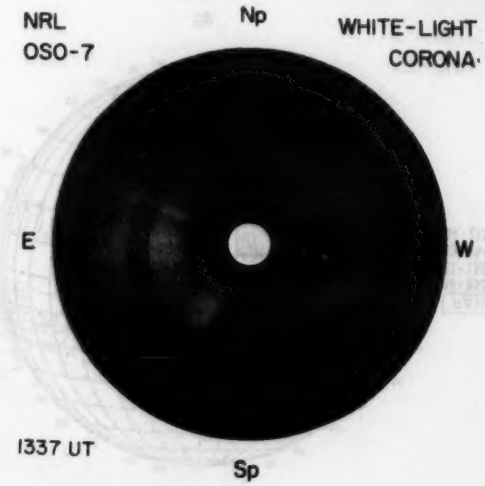
1645 UT

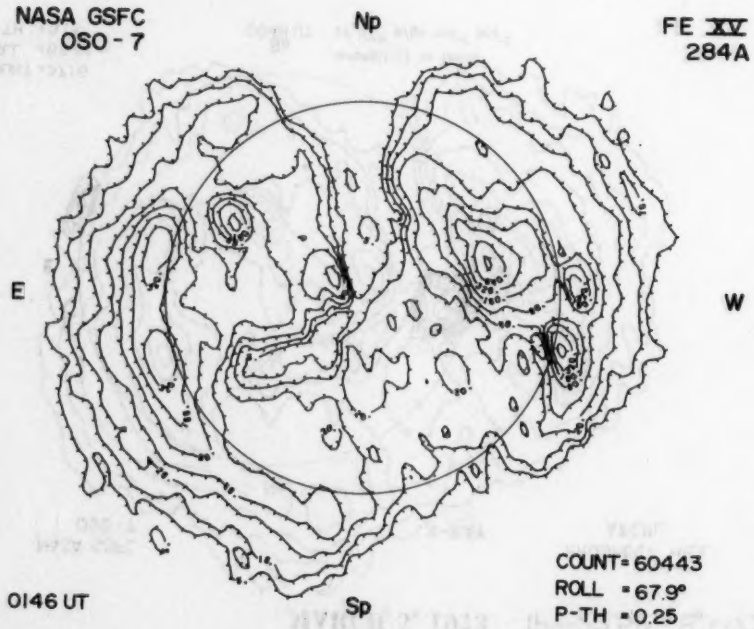
BOULDER

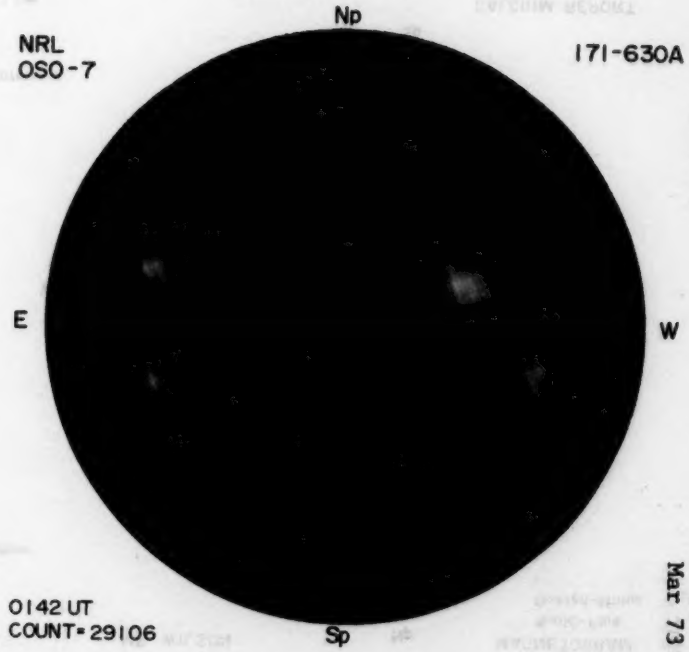
20-21 UT Brightness Unit 3,000° K 02-03 UT Brightness Unit 1,700° K 1645 UT









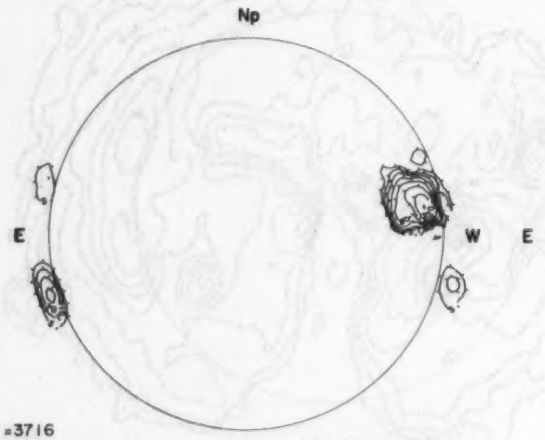


MARCH 5, 1973 (P=-22.52, B_o=-7.25, L_o= 91.71)

38 Mar 73

NASA GSFC
OSO-7

X-RAY



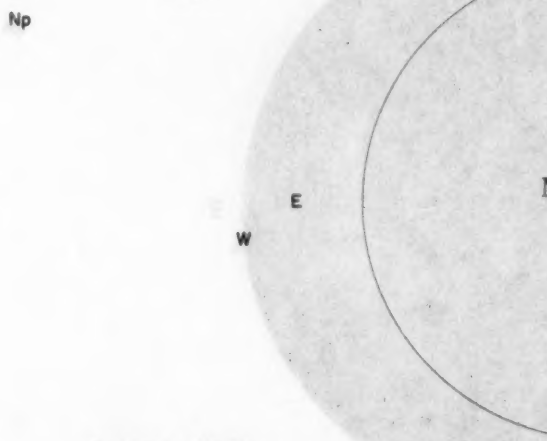
COUNT =3716
ROLL =69.0°
P-TH =0.13

0048 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

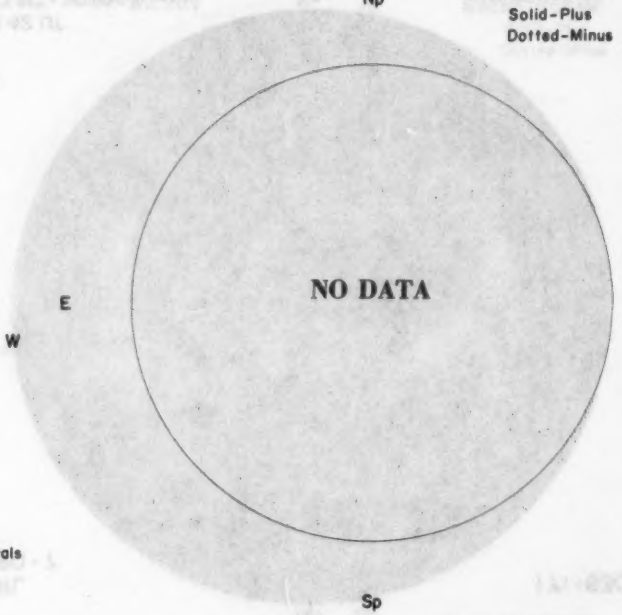
8.6 mm



Contours in Intervals of 200° K

MT. WILSON

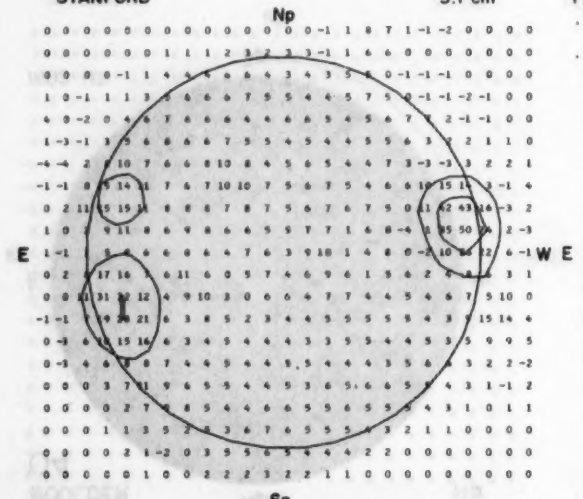
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

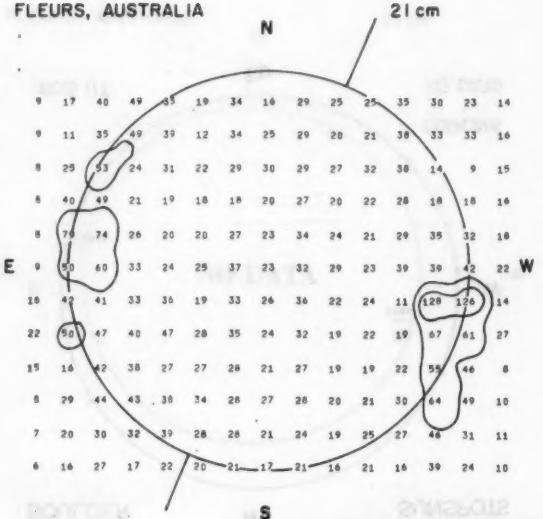


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

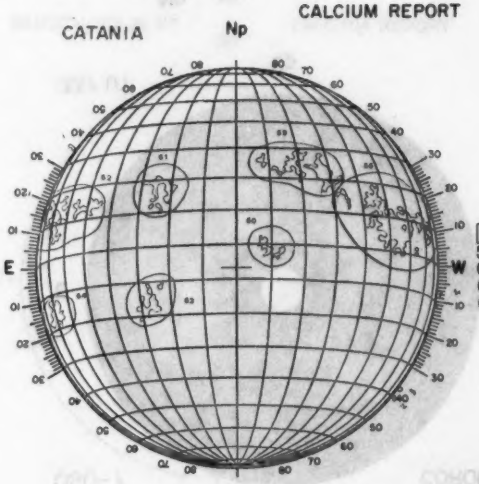


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

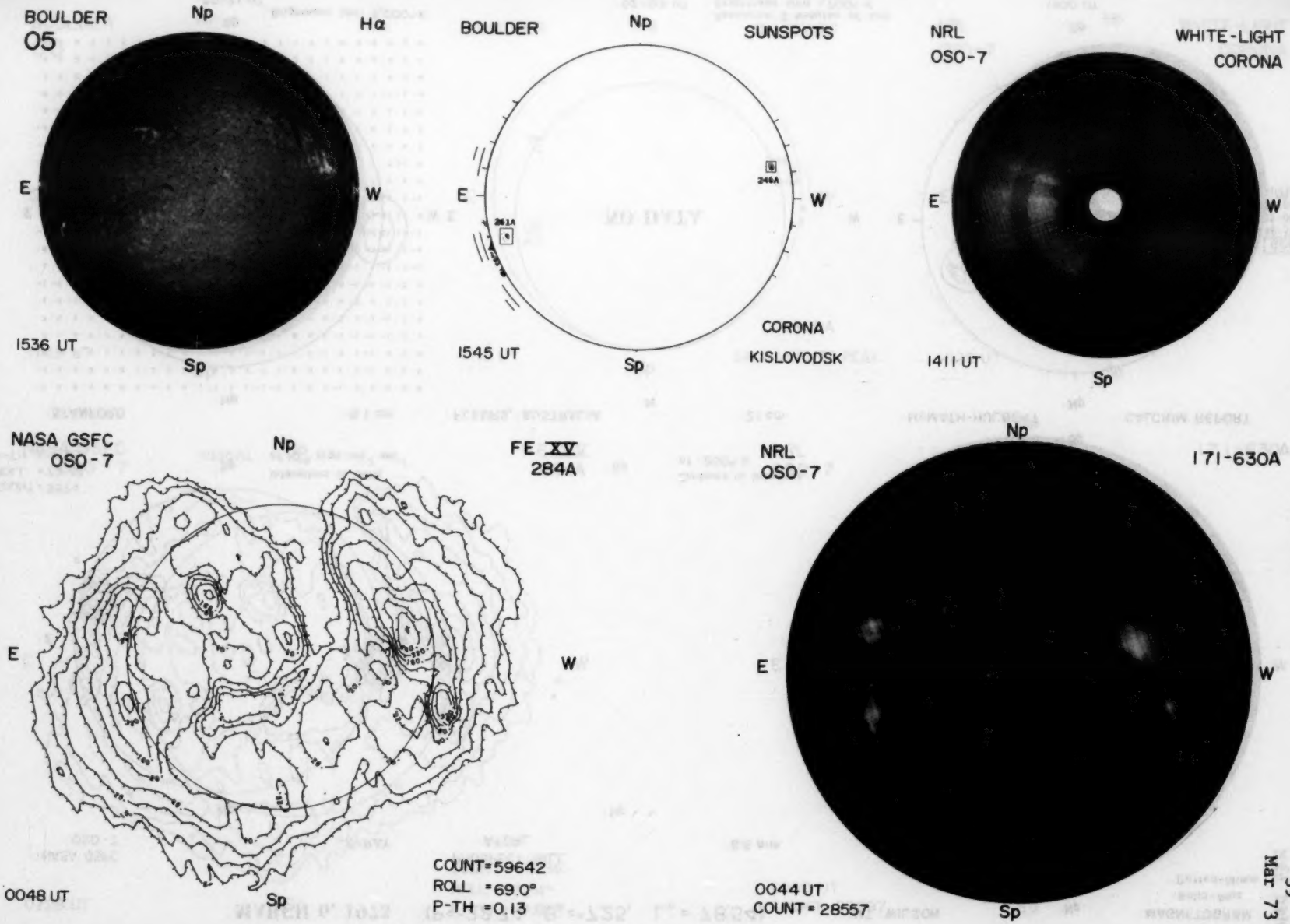
CATANIA



	FAIR	GD
56-9931	---	
61-1389	---	
62-4542	---	
64-2333	---	

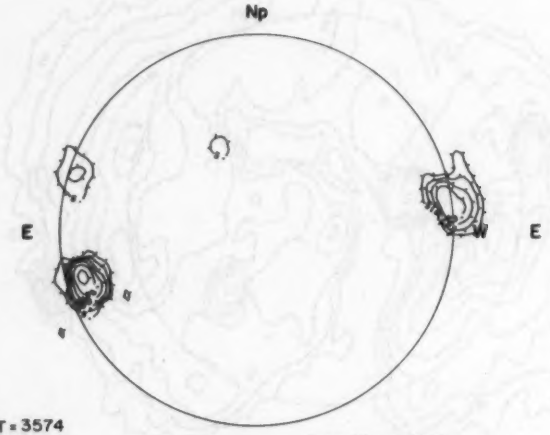
0850 UT

BOULDER


BOULDER
05
Np
Hα
E
W
Sp
1536 UT
BOULDER
Np
SUNSPOTS
E
W
Sp
1545 UT
CORONA
KISLOVODSK
NRL
OSO-7
WHITE-LIGHT
CORONA
E
W
Sp
1411 UT
NASA GSFC
OSO-7
Np
FE XV
284A
E
W
Sp
0048 UT
COUNT=59642
ROLL =69.0°
P-TH =0.13
NRL
OSO-7
Np
171-630A
E
W
Sp
0044 UT
COUNT = 28557

MARCH 6, 1973 (P=-22.74, B_o=-7.25, L_o= 78.54)

NASA GSFC
OSO-7
X-RAY

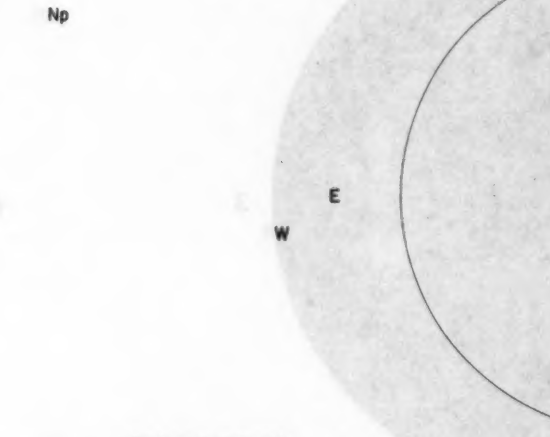


COUNT = 3574
ROLL = 72.4°
P-TH = -0.03

0720 UT

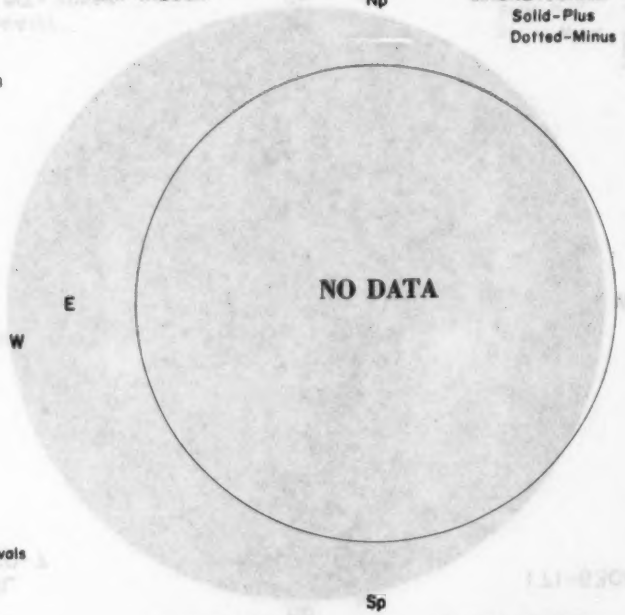
Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm



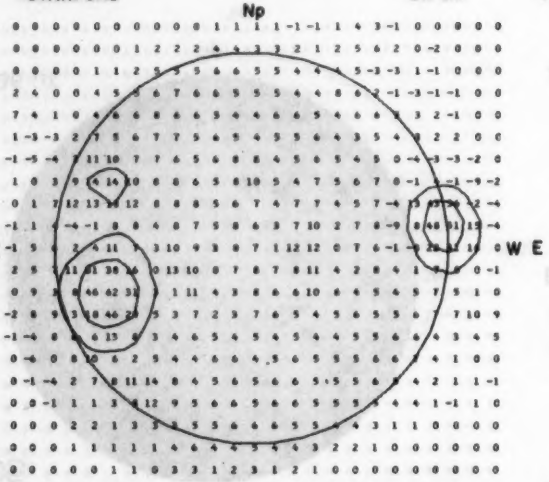
Contours in Intervals of 200° K

MT. WILSON
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

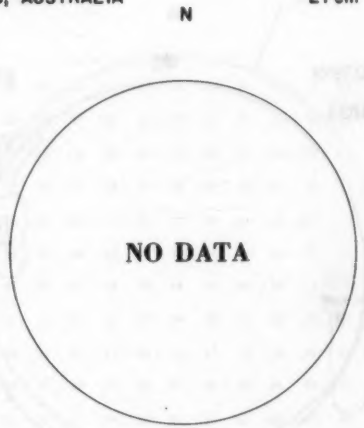
STANFORD
9.1 cm



20-21 UT

Brightness Unit 5,000° K

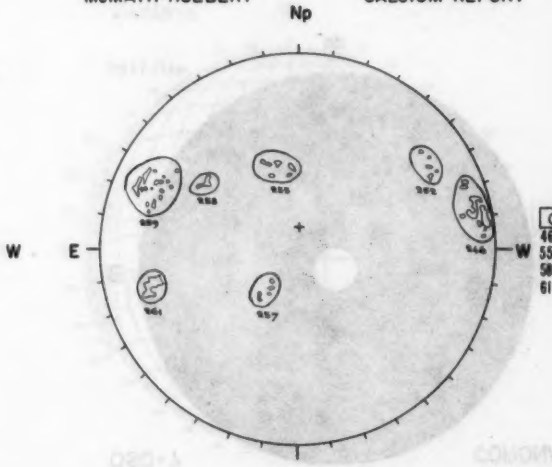
FLEURS, AUSTRALIA
21 cm



02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT
CALCIUM REPORT



GOOD	M
46 - 3400	-3.5
55 - 0600	-2.5
58 - 0400	-2.5
61 - 1500	-4.0

1800 UT

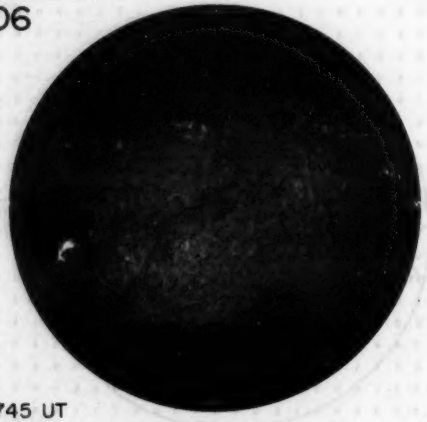
BOULDER
Np

20-21 UT

BOULDER
06

Np

Hα



E W

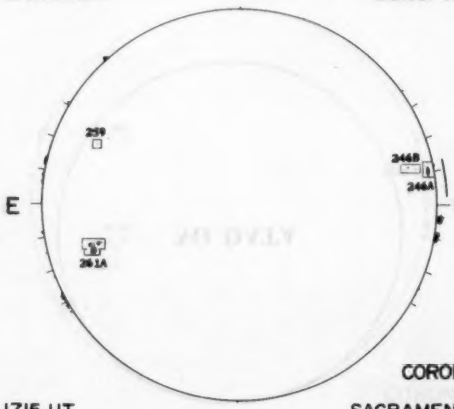
Sp

1745 UT

BOULDER

Np

SUNSPOTS



E W

CORONA

Sp

1715 UT

SACRAMENTO PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

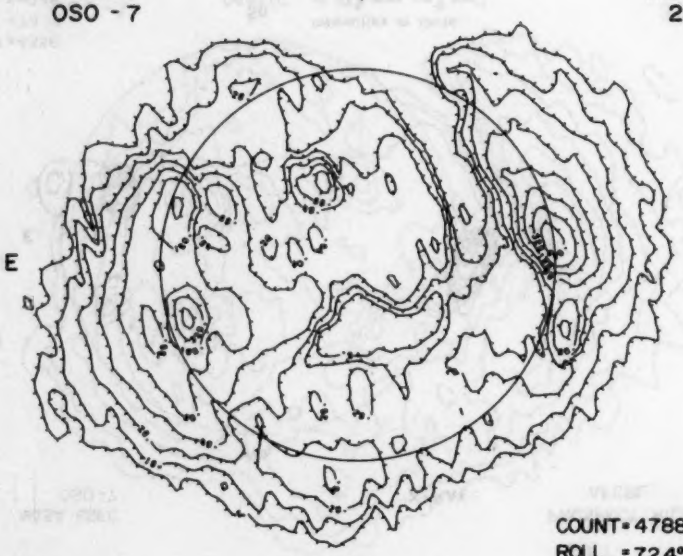
E W

Sp

1628 UT

NASA GSFC
OSO - 7

Np



E W

Sp

0728 UT

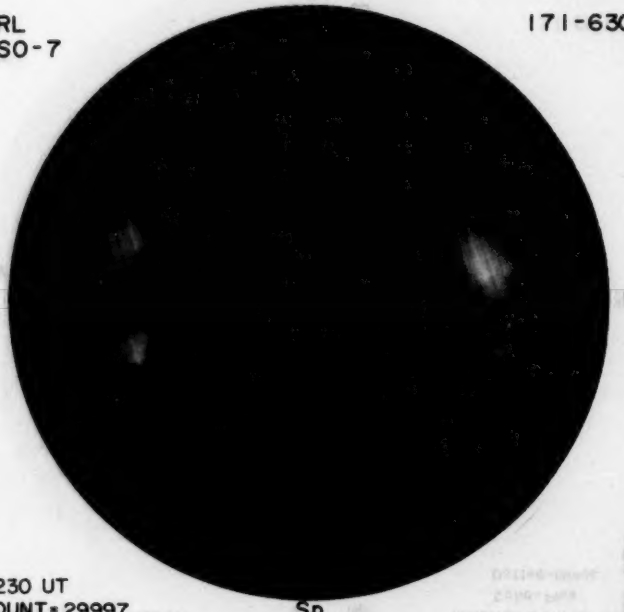
FE XV
284A

COUNT = 47886
ROLL = 72.4°
P-TH = -0.03

NRL
OSO-7

Np

171-630A



E W

Sp

0230 UT
COUNT = 29997

MARCH 7, 1973 (P=-22.96, B_o=-7.25, L_o = 65.36)

NASA GSFC
OSO-7

X-RAY

Np

E

E

COUNT = 4336
ROLL = 74.7°
P-TH = -0.15

Sp

0441 UT

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

Sp

Contours in Intervals
of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Np

E

NO DATA

W

W

Sp

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np

E

W E

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

NO DATA

W

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

Np

E

W

GOOD	D
46-2000	-2.5
55-0600	-2.5
58-0500	-2.5
58-2000	-3.5
61-1500	-3.5

Sp

1810 UT

20-21 UT

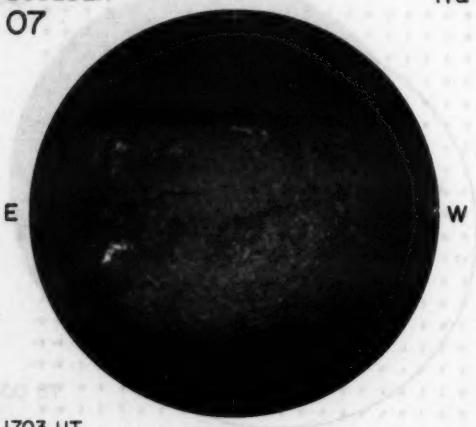
02-03 UT Brightness Unit 1,700° K

1810 UT

BOULDER
07

Np

Hα



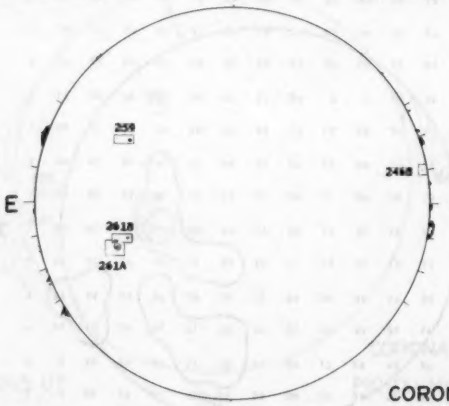
1703 UT

Sp

BOULDER

Np

SUNSPOTS



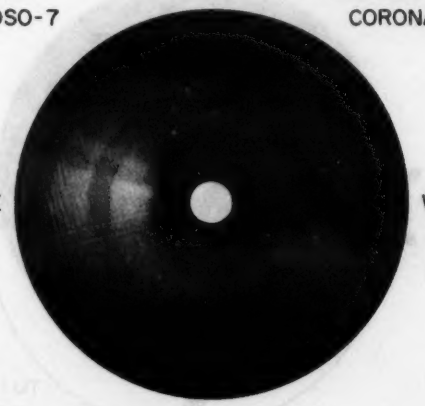
1630 UT

Sp

CORONA
KISLOVODSK

NRL
OSO-7

WHITE-LIGHT
CORONA



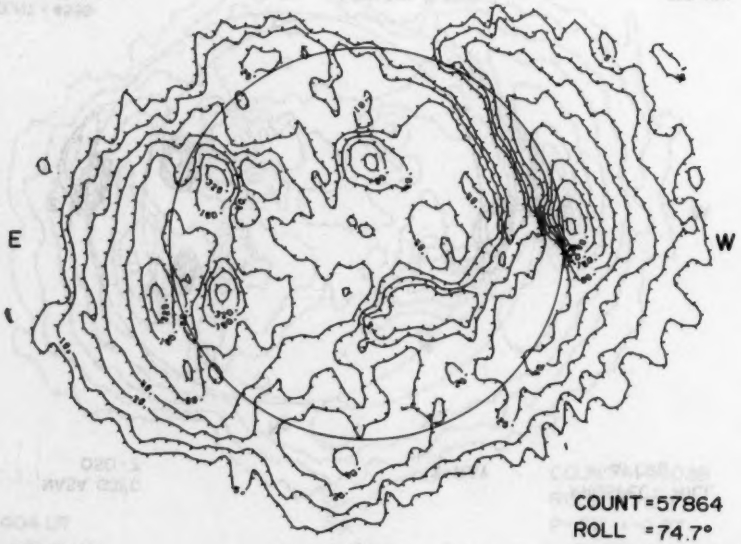
1524 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



COUNT=57864
ROLL =74.7°
P-TH =-0.15

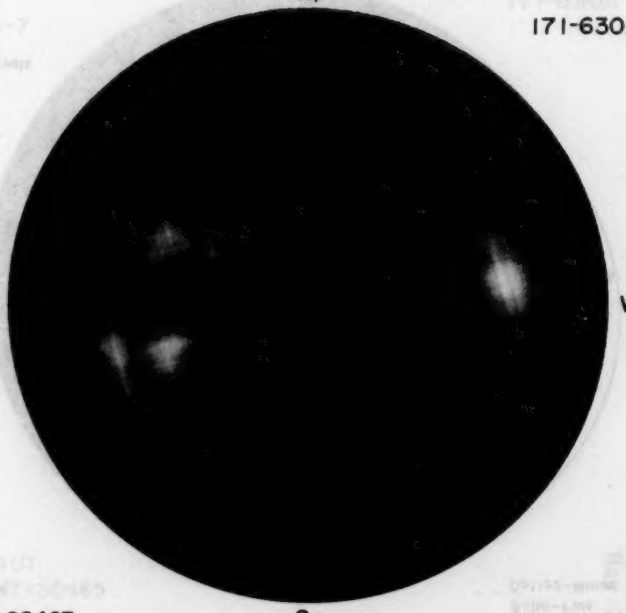
0505 UT

Sp

NRL
OSO-7

Np

171-630A



0156 UT
COUNT=29407

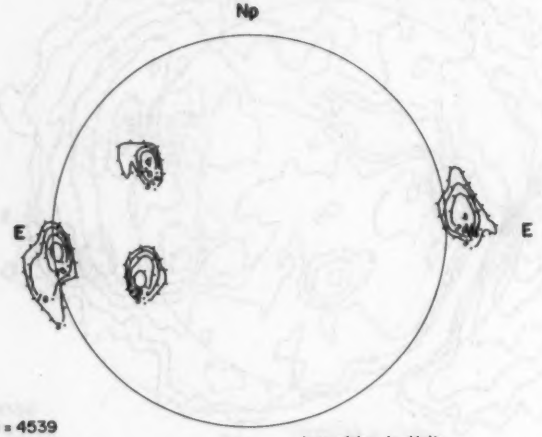
Sp

43
Mar 73

MARCH 8, 1973 (P=-23.17, B_o=-7.25, L_o= 52.19)

NASA GSFC
OSO-7

X-RAY



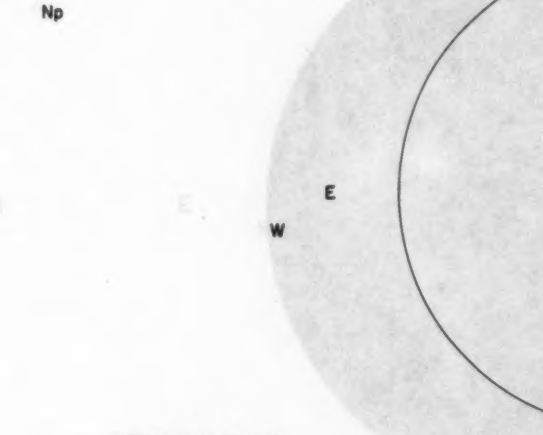
COUNT = 4539
ROLL = 76.9°
P-TH = -0.27

0340 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

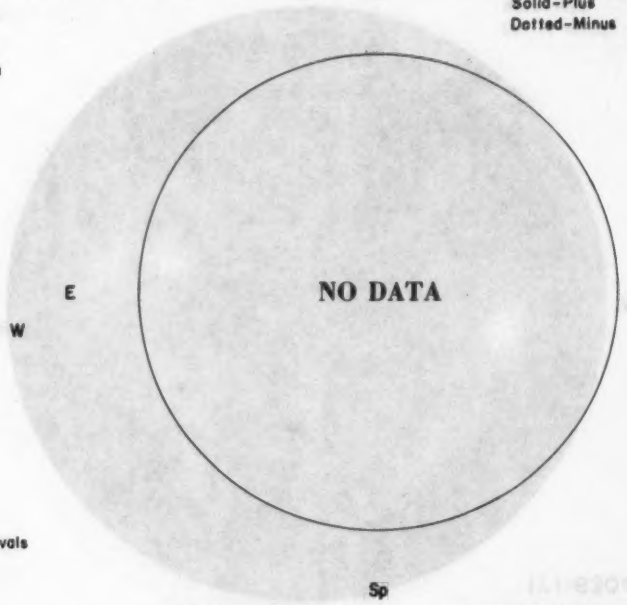
8.6 mm



Contours in Intervals of 200° K

MT. WILSON

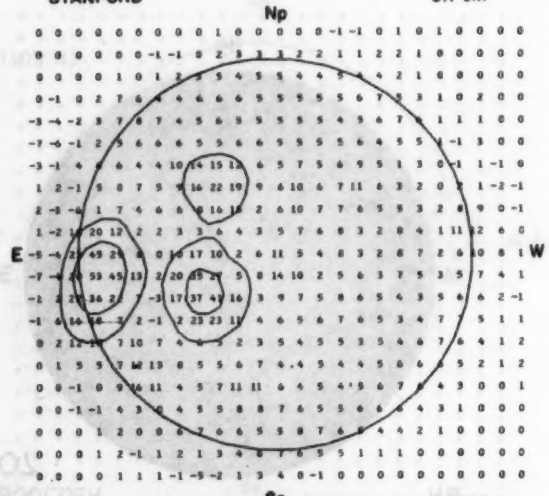
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

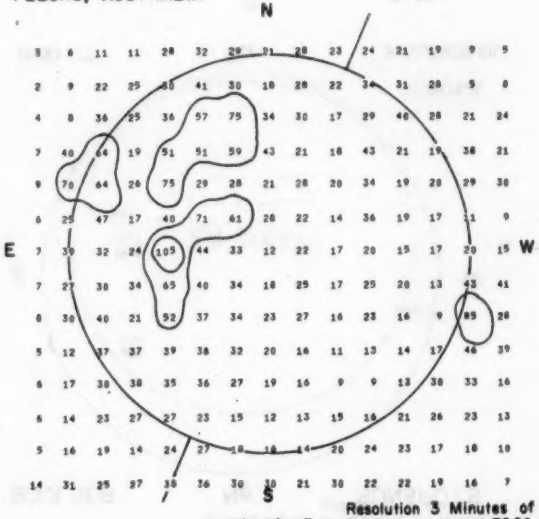


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

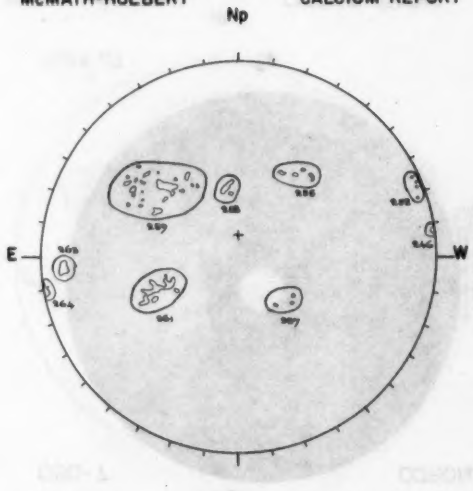


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



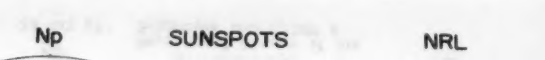
1330 UT

	FAIR	D
58	0400	-2.5
59	2200	-2.5
61	1500	-3.5
63	0800	-4.0
64	0500	-2.5

BOULDER
08

Hα

BOULDER



SUNSPOTS

NRL

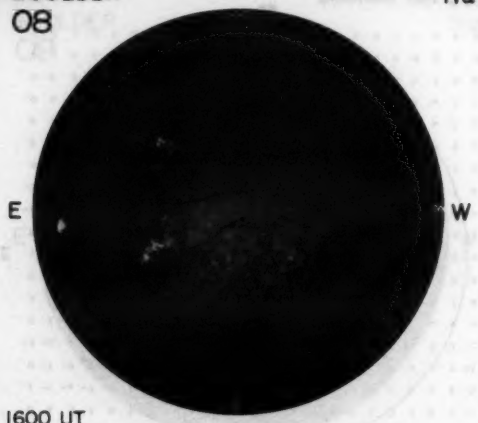
WHITE-LIGHT

20-21 UT

BOULDER
08

Np

Hα

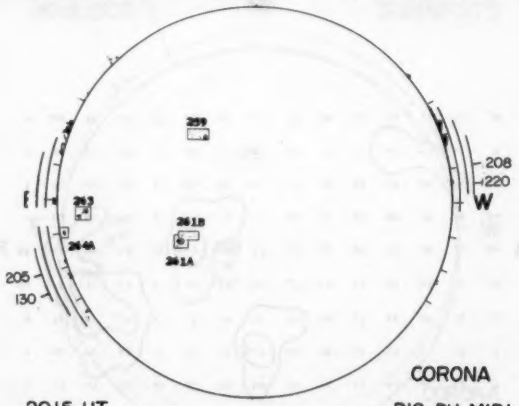


1600 UT

BOULDER

Np

SUNSPOTS



2015 UT

CORONA
PIC-DU-MIDI

NRL
OSO-7

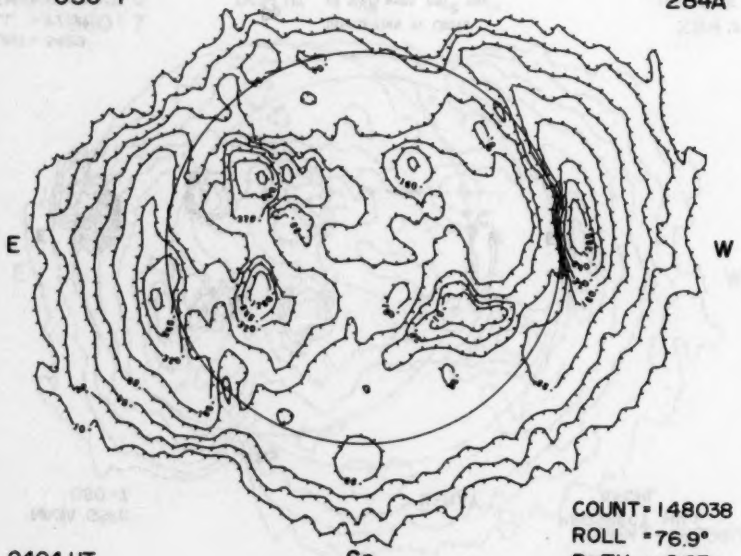
WHITE-LIGHT
CORONA

1111 UT

NASA GSFC
OSO-7

Np

FE. XV
284A



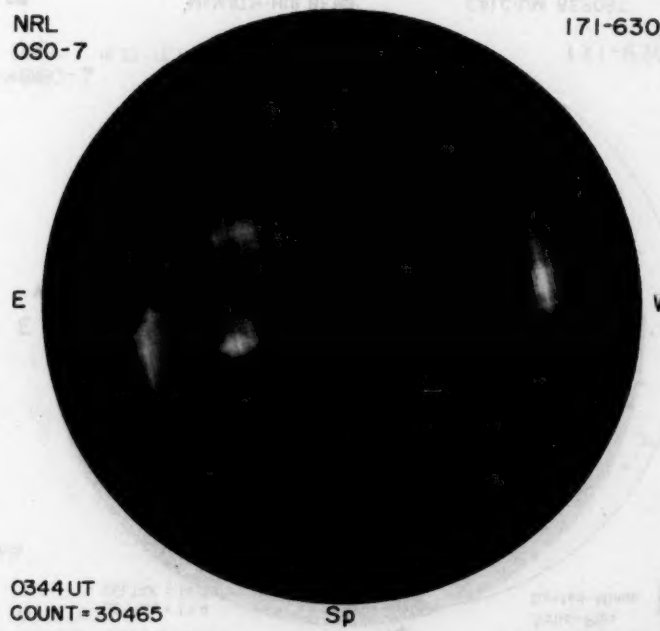
0404 UT

COUNT = 148038
ROLL = 76.9°
P-TH = -0.27

Np

NRL
OSO-7

171-630A



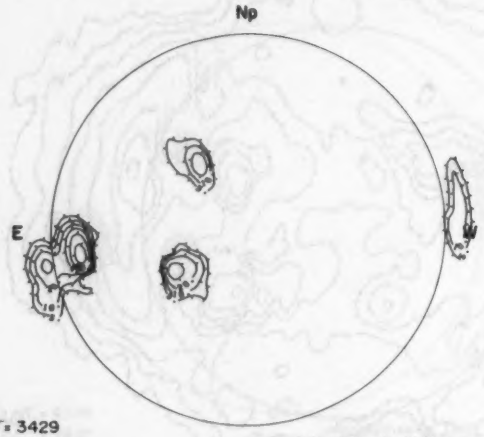
0344 UT
COUNT = 30465

Note: The aperature used for March 1-7, 14 & 16 was 20x20 arcsec and for March 8-13, 15, 17-31 was 60x20 arcsec.

MARCH 9, 1973 (P=-23.37, B_o=-7.24, L_o= 39.01)

NASA GSFC
OSO-7

X-RAY



COUNT = 3429
ROLL = 77.7°
P-TH = -0.40

0424 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

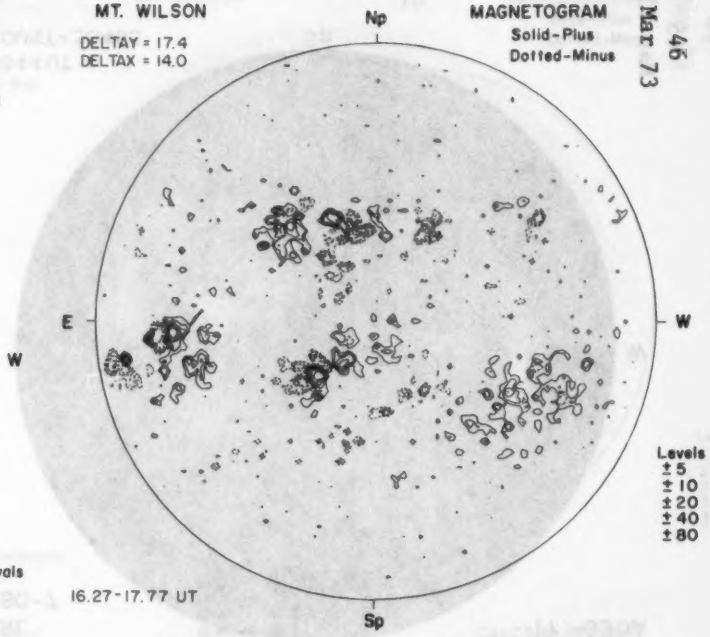
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

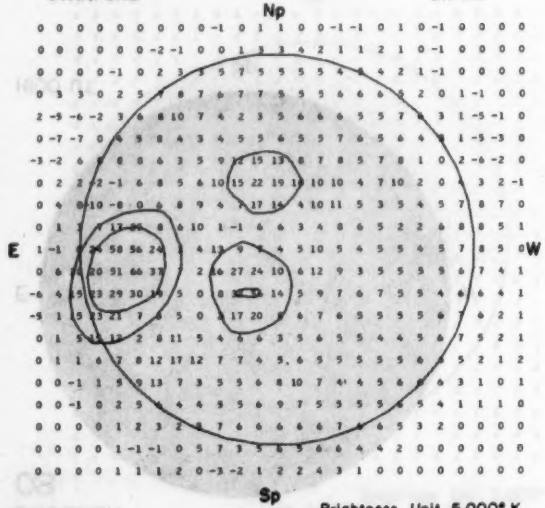


Levels
±5
±10
±20
±40
±80

16.27-17.77 UT

STANFORD

9.1 cm

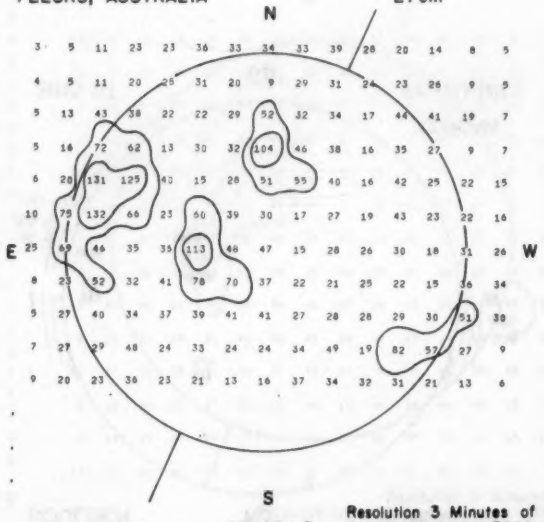


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

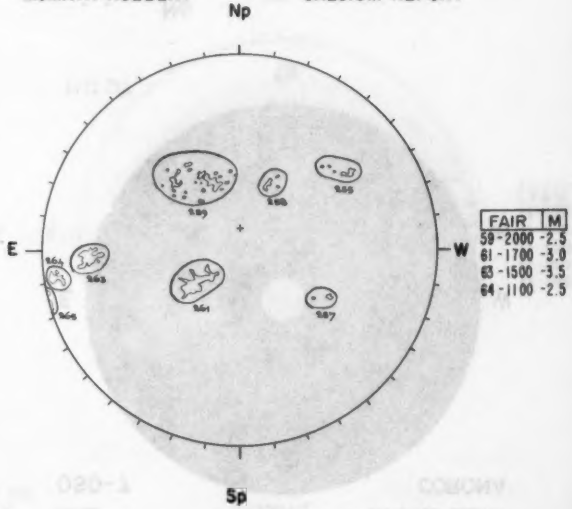


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

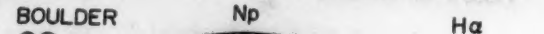
McMATH-HULBERT

CALCIUM REPORT



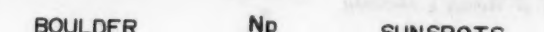
1410 UT

BOULDER



Hα

BOULDER



SUNSPOTS

20-21 UT

02-03 UT Brightness Unit 1,700° K

1410 UT

BOULDER
09

Np

Hα

E

W

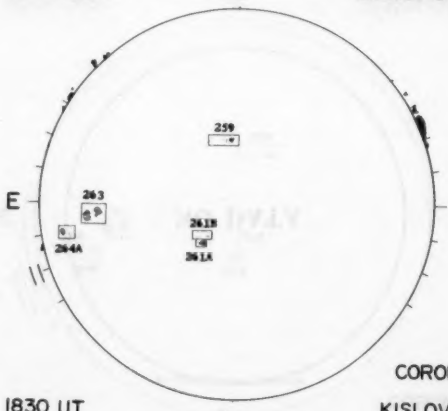
Sp

1821 UT

BOULDER

Np

SUNSPOTS



E

W

Sp

1830 UT

CORONA

KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

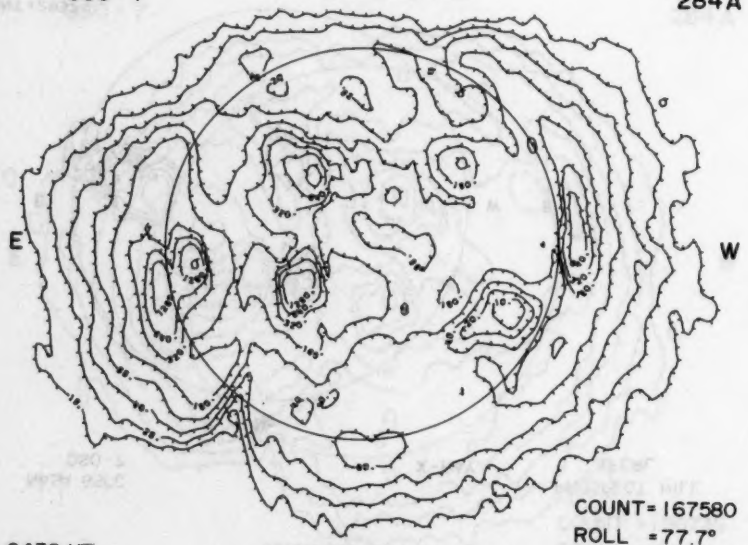
Sp

1151 UT

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

Sp

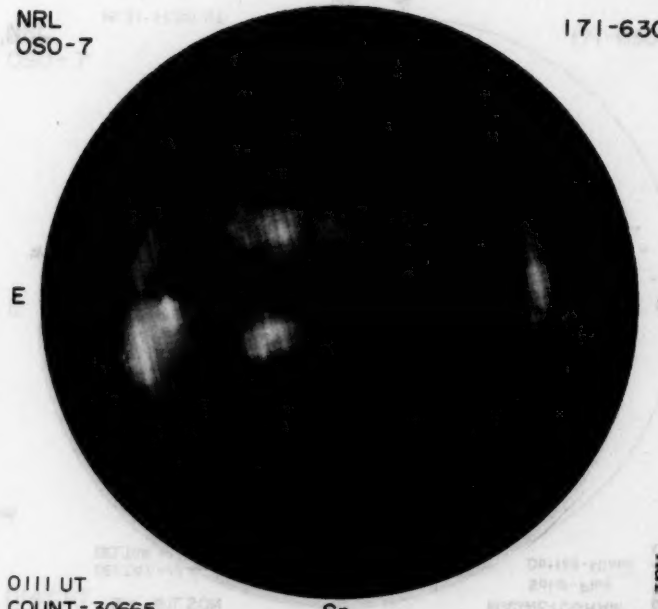
0432 UT

COUNT = 167580
ROLL = 77.7°
P-TH = -0.40

NRL
OSO-7

Np

171-630A



E

W

Sp

0111 UT
COUNT = 30665

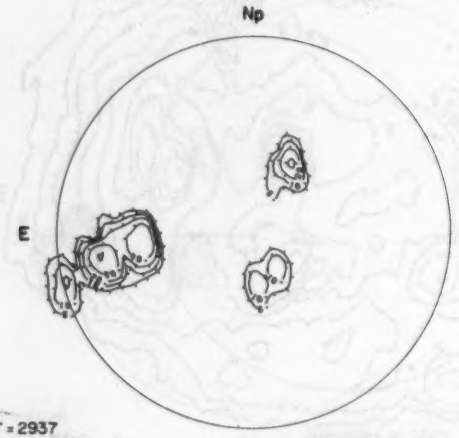
47
Mar 73

MARCH 10, 1973 (P=-23.57, B_o=-7.23, L_o= 25.83)

48 Mar 73

NASA GSFC
OSO-7

X-RAY



COUNT = 2937
ROLL = 77.8°
P-TH = -0.62

2337 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

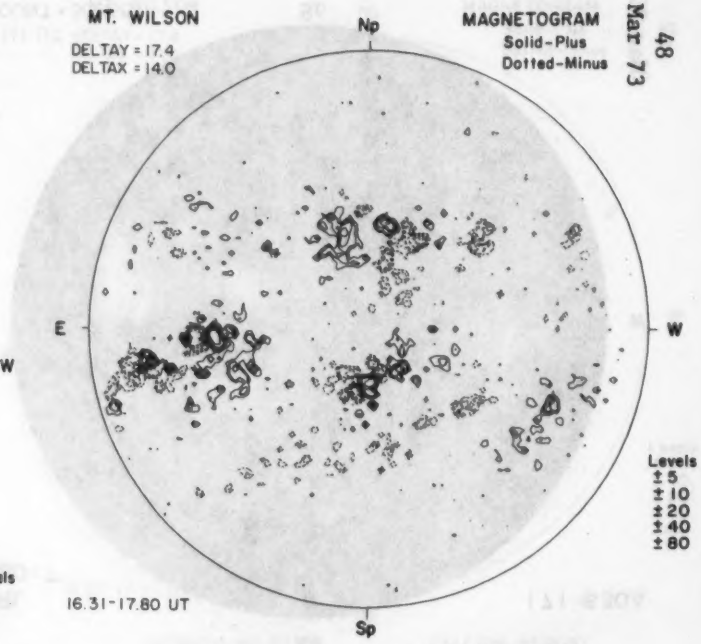
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

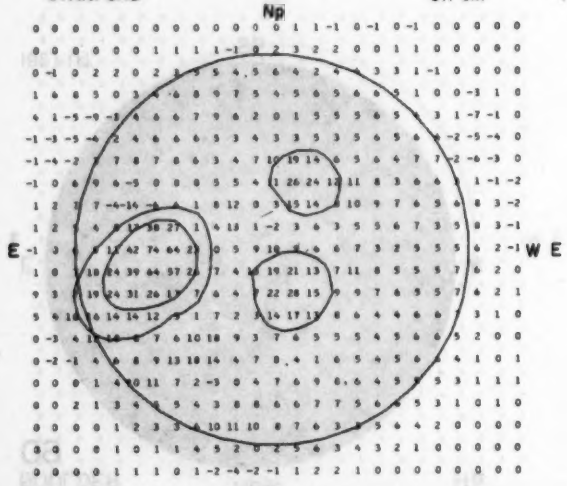


Levels
±5
±10
±20
±40
±80

16.31-17.80 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

5
02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA

GOOD	GD
62-8507	---
64-3048	---
65-8882	---
66-3795	---

0810 UT

20-21 UT Brightness Unit 5,000° K

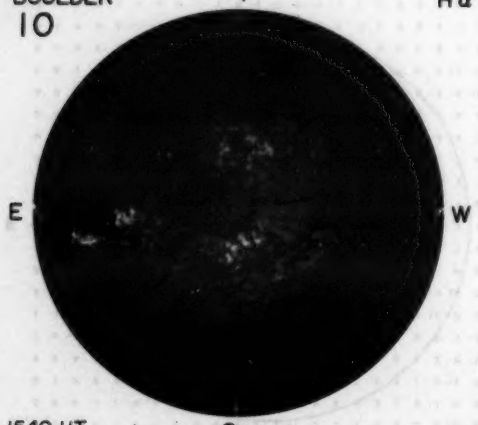
02-03 UT Brightness Unit 1,700° K

0810 UT

BOULDER
10

Np

Hα



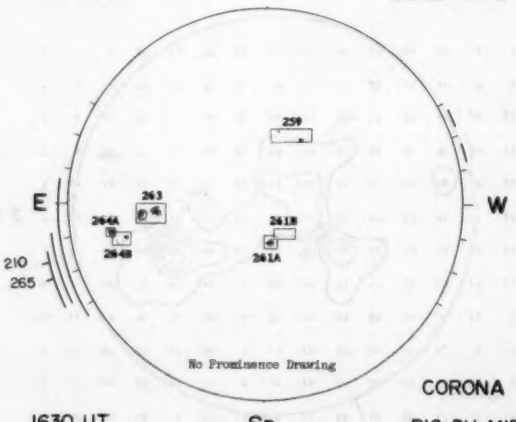
1540 UT

Sp

BOULDER

Np

SUNSPOTS



1630 UT

Sp

CORONA

PIC-DU-MIDI

NRL
OSO-7

Np

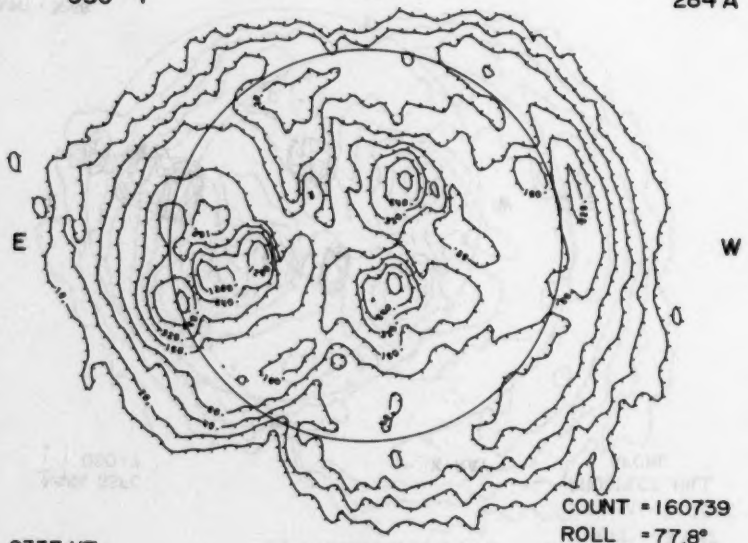
WHITE-LIGHT
CORONA

1228 UT

Sp

NASA GSFC
OSO-7

Np



2337 UT

Sp

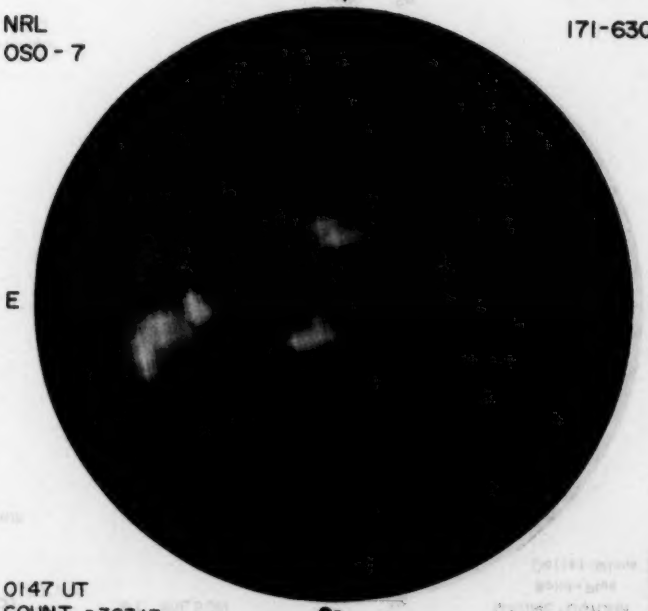
COUNT = 160739
ROLL = 77.8°
P-TH = -0.62

FE XV
284 A

NRL
OSO-7

Np

171-630A



0147 UT
COUNT = 30313

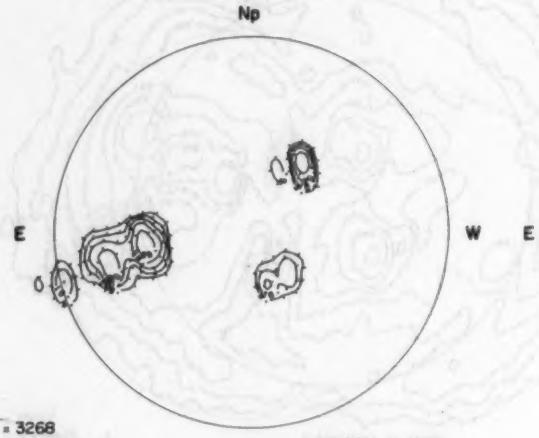
Sp

MARCH 11, 1973 (P=-23.76, B_o=-7.22, L_o= 12.66)

50
Mar 73

NASA GSFC
OSO-7

X-RAY



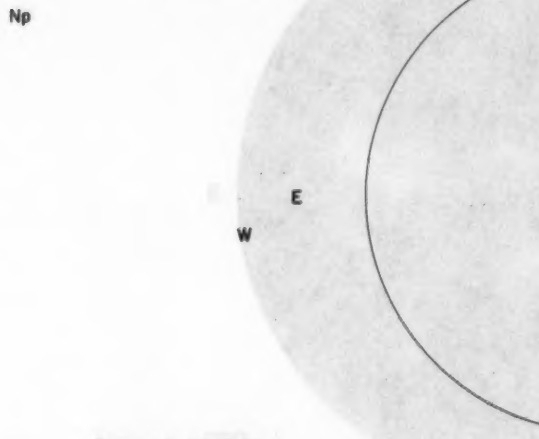
COUNT = 3268
ROLL = 77.8°
P-TH = -0.66

0558 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

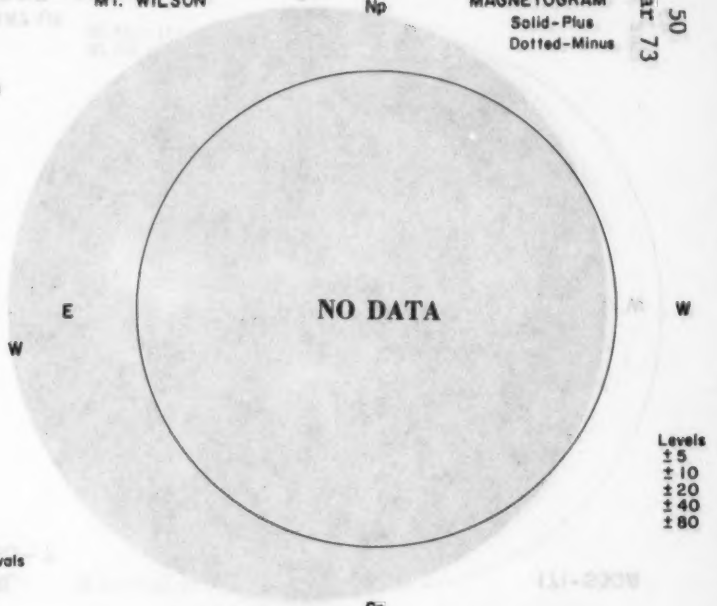
8.6 mm



Contours in Intervals of 200° K

MT. WILSON

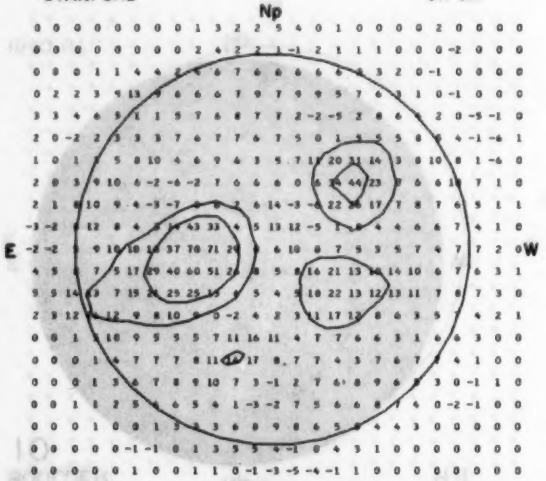
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

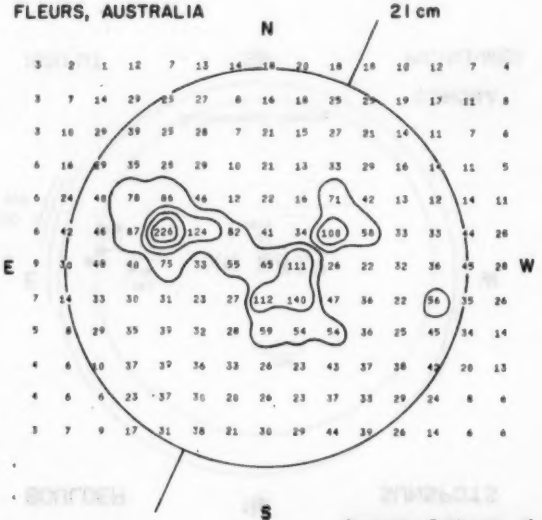


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

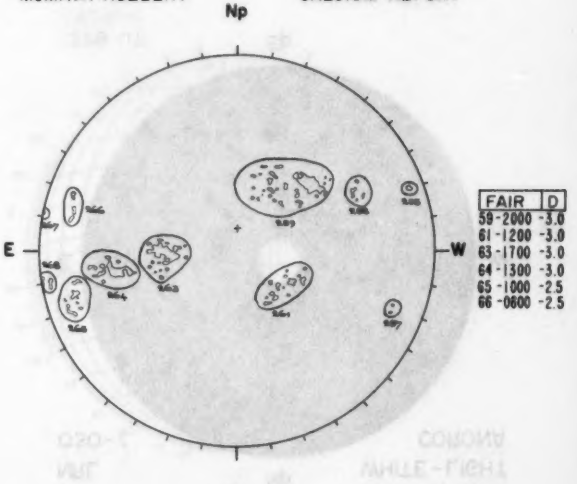


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR	D
59-2000	-3.0
61-1200	-3.0
63-1700	-3.0
64-1300	-3.0
65-1000	-2.5
66-0600	-2.5

1910 UT

Brightness Unit 5,000° K

20-21 UT

02-03 UT

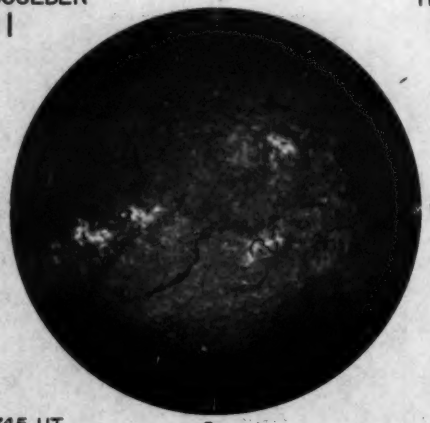
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1910 UT

BOULDER
II

Np

Hα

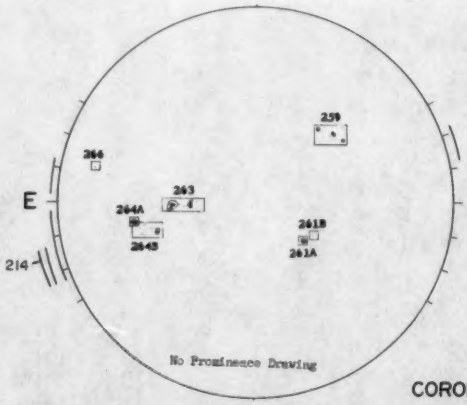


1745 UT

BOULDER

Np

SUNSPOTS



1730 UT

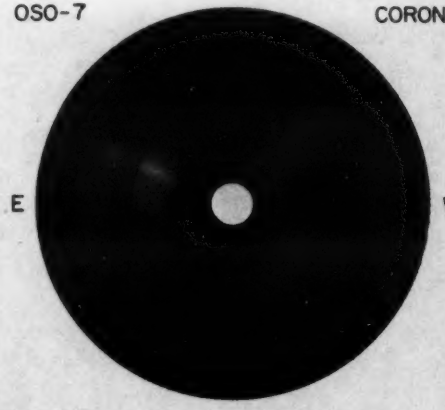
Sp

CORONA
PIC-DU-MIDI

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

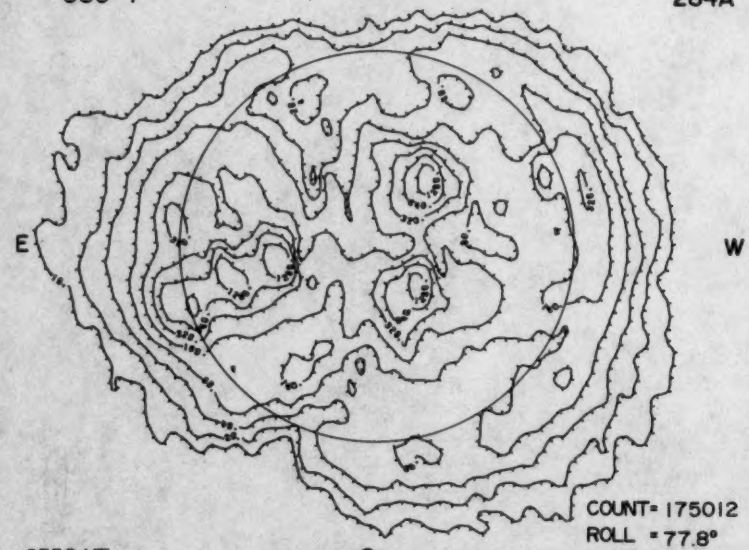


0952 UT

NASA GSFC
OSO-7

Np

FE XV
284A



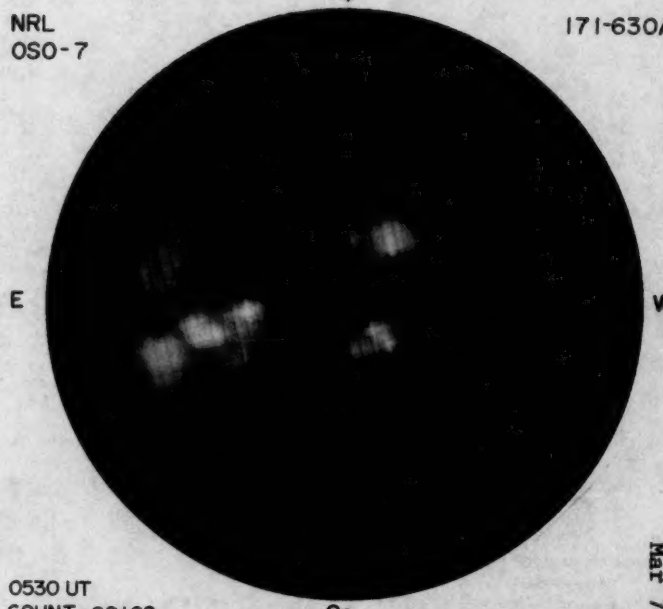
COUNT= 175012
ROLL = 77.8°
P-TH = -0.66

0550 UT

NRL
OSO-7

Np

171-630A



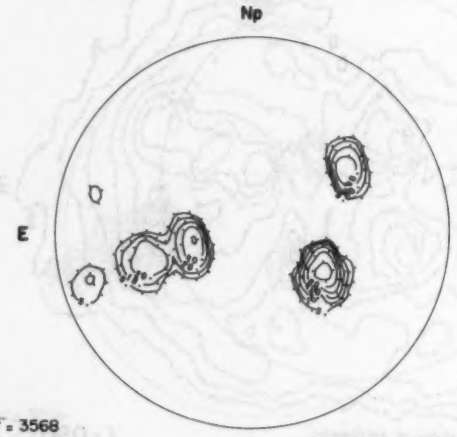
0530 UT
COUNT=29169

51
Mar 73

MARCH 12, 1973 (P=-23.95, B_o=-7.21, L_o=359.48)

NASA GSFC
OSO-7

X-RAY



COUNT = 3568
ROLL = 77.8°
P-TH = -0.78

0455 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

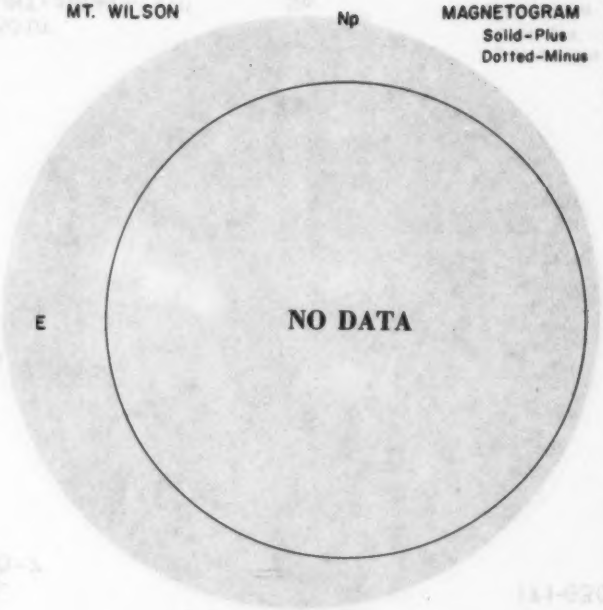
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

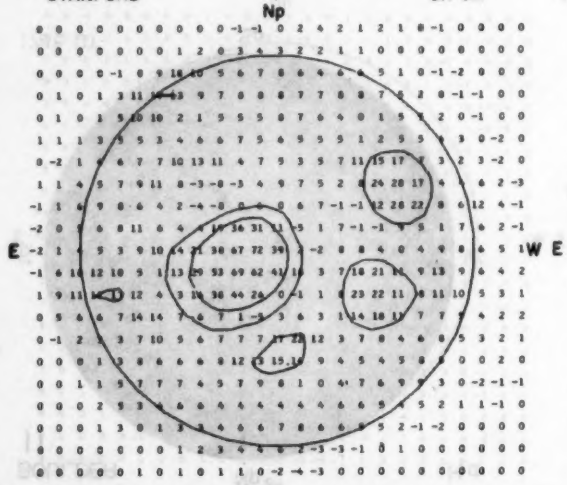
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

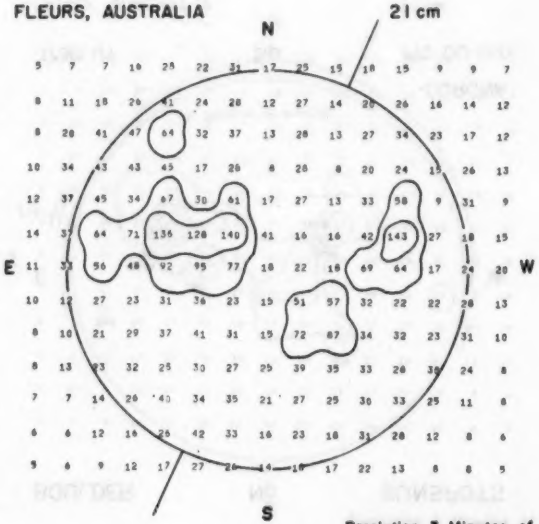


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

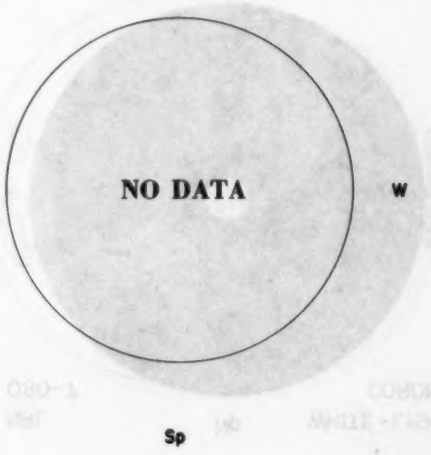


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



20-21 UT Brightness Unit 5,000° K

02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K

BOULDER 12

Np

Hα

E W

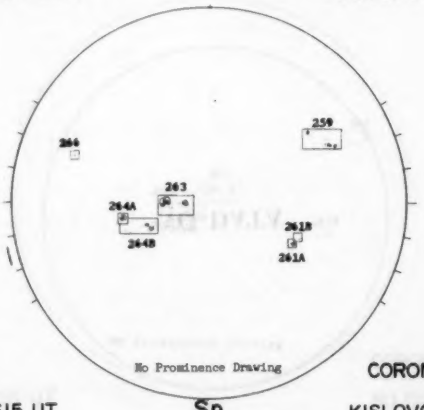
Sp

1615 UT

BOULDER

Np

SUNSPOTS



E W

CORONA

KISLOVODSK

1615 UT

Sp

NRL OSO-7

Np

WHITE-LIGHT CORONA

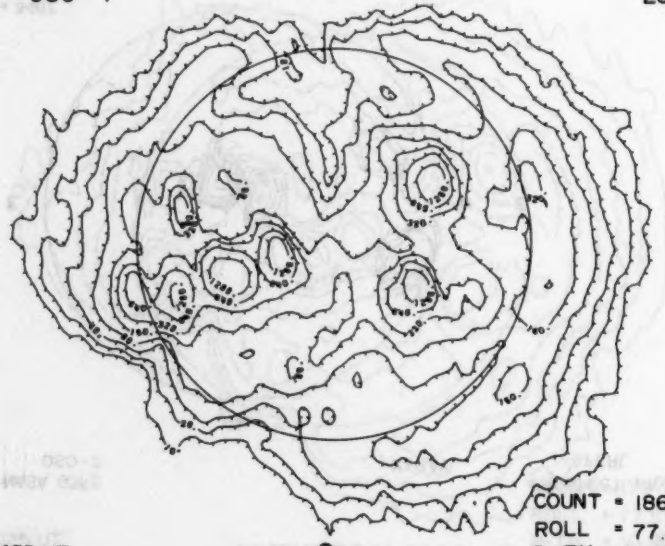
E W

1028 UT

Sp

NASA GSFC OSO-7

Np



E W

COUNT = 186304
ROLL = 77.8°
P-TH = -0.78

0455 UT

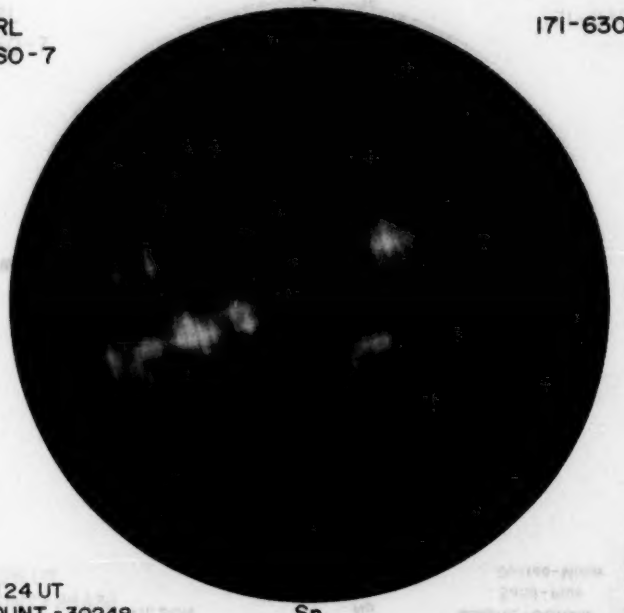
Sp

FE XV 284A

NRL OSO-7

Np

171-630A



E W

0124 UT
COUNT = 30248

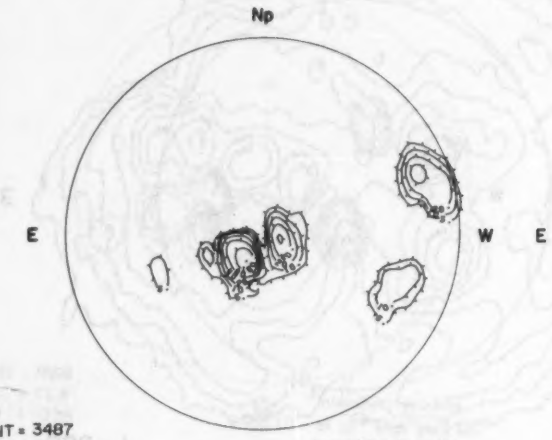
Sp

MARCH 13, 1973 (P=-24.13, B_o=-7.20, L_o=346.30)

54 Mar 73

NASA GSFC
OSO-7

X-RAY



COUNT = 3487
ROLL = 77.8°
P-TH = -0.98

2025 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

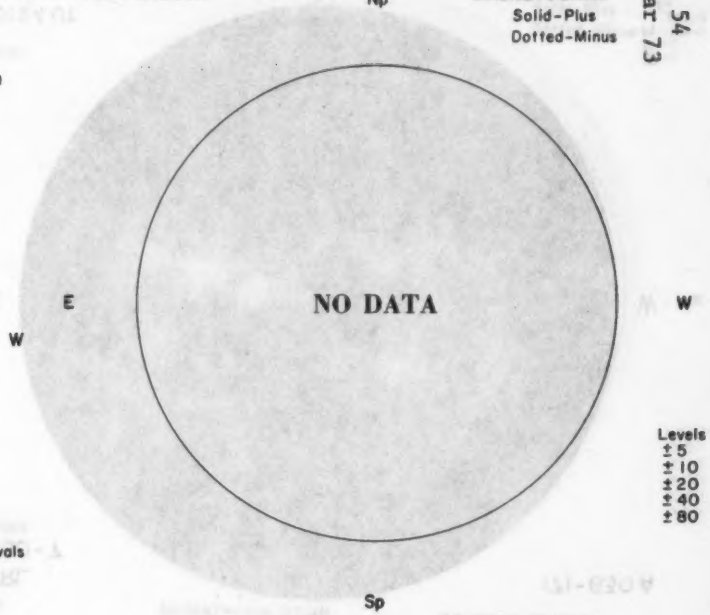
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

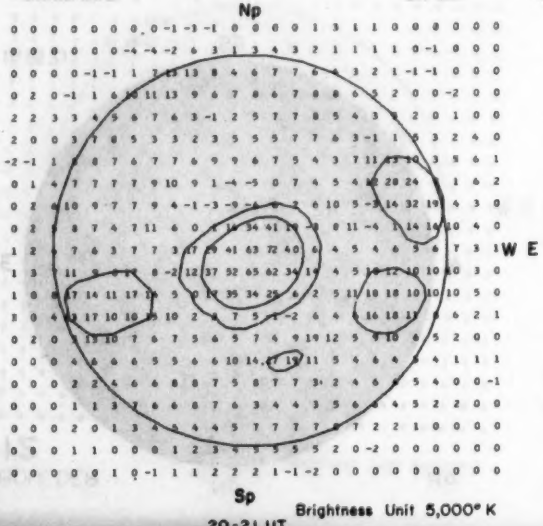
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

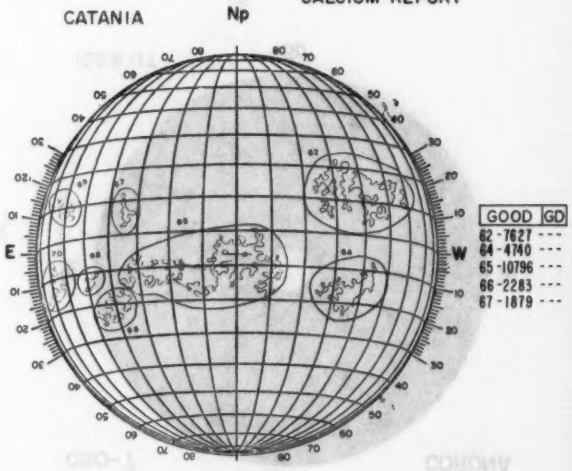
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA



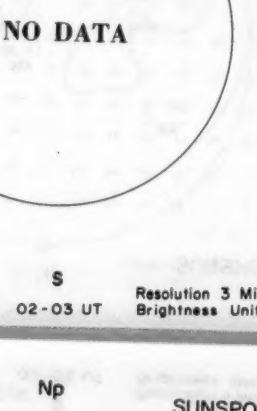
GOOD	GD
62-7627	---
64-4740	---
65-10796	---
66-2283	---
67-1879	---

0835 UT

BOULDER
13

Hα

BOULDER



SUNSPOTS

Sp

20-21 UT

Brightness Unit 5,000° K

S

02-03 UT

Resolution 3 Minutes of Arc

Brightness Unit 1,700° K

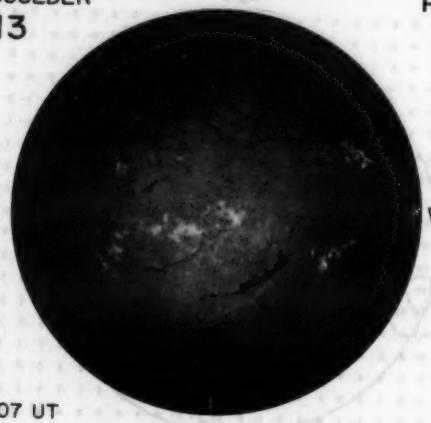
0835 UT

BOULDER

13

Np

Hα



E

W

1707 UT

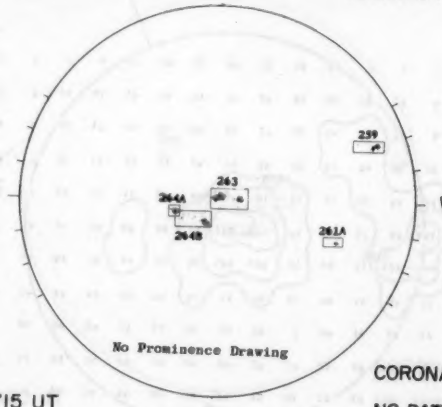
Sp

Np

BOULDER

Np

SUNSPOTS



E

W

1715 UT

Sp

CORONA

NO DATA

NRL

OSO-7

Np

WHITE-LIGHT

CORONA

E

W

1538 UT

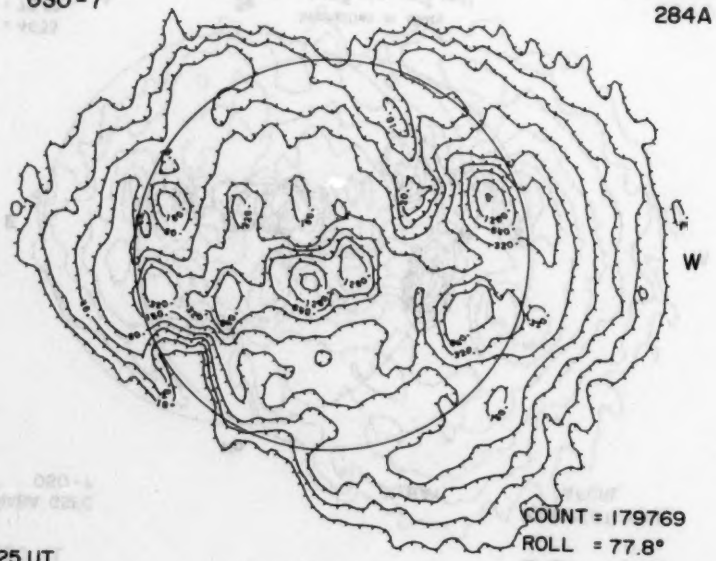
Sp

NASA GSFC

OSO-7

FE XV

284A



E

W

COUNT = 179769

ROLL = 77.8°

P-TH = -0.98

2025 UT

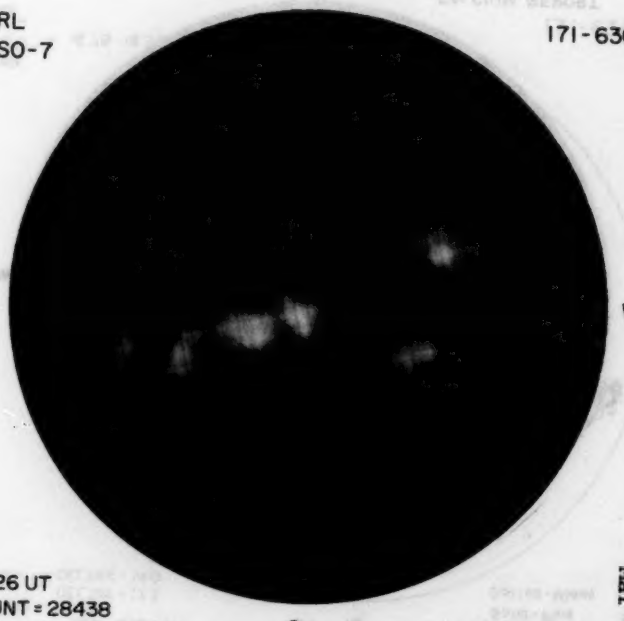
Sp

Np

NRL

OSO-7

171-630A



E

W

0326 UT

COUNT = 28438

Sp

55

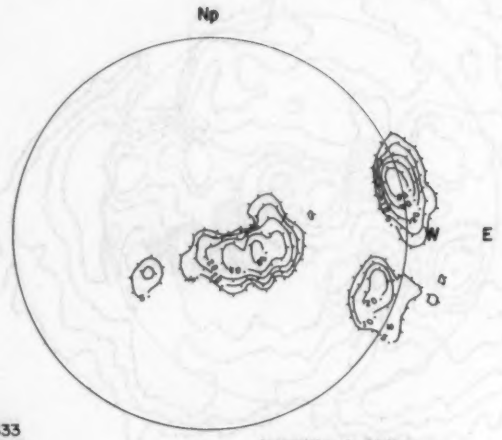
Mar 73

MARCH 14, 1973 (P=-24.30, B_o=-7.18, L_o=333.12)

Mar 73 56

NASA GSFC
OSO-7

X-RAY



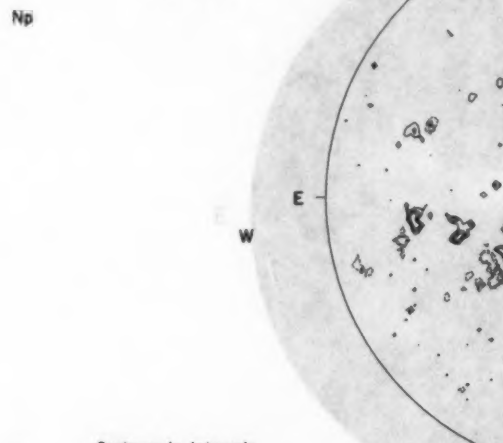
COUNT = 4633
ROLL = 76.5°
P-TH = -1.10

1823 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

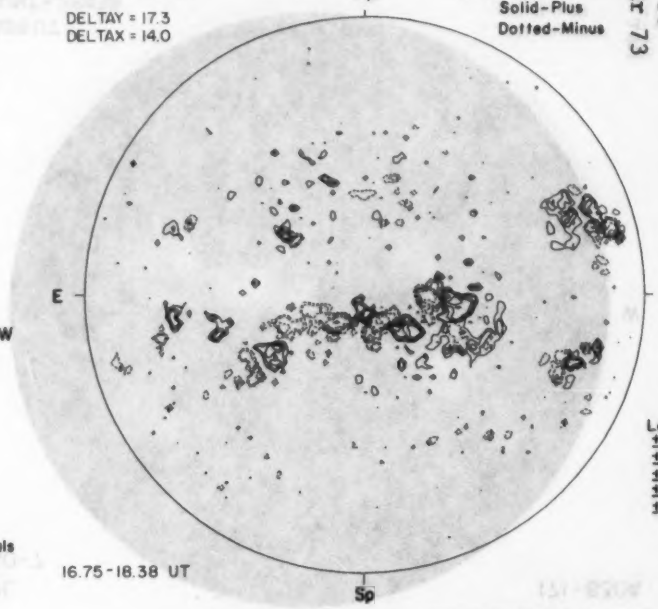


Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.3
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

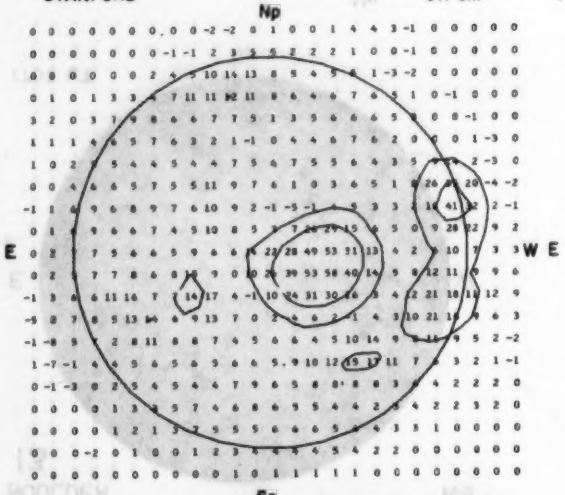


Levels
±5
±10
±20
±40
±80

16.75-18.38 UT

STANFORD

9.1 cm

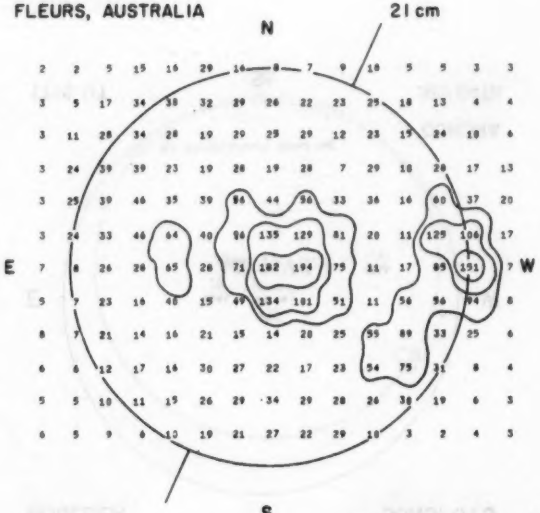


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

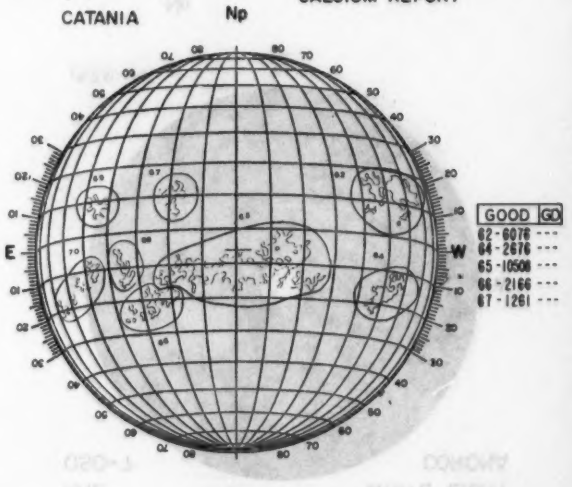


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA



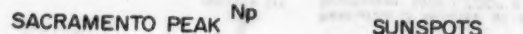
GOOD	GO
62 - 6076	---
64 - 2676	---
65 - 10508	---
66 - 2166	---
67 - 1261	---

1230 UT

RAMEY AFB

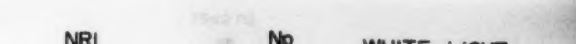
Hα

SACRAMENTO PEAK



SUNSPOTS

NRL



WHITE LIGHT

20-21 UT
Brightness Unit 5,000° K

02-03 UT
Brightness Unit 1,700° K

1230 UT

RAMEY AFB
14

Np

Hα

E

W

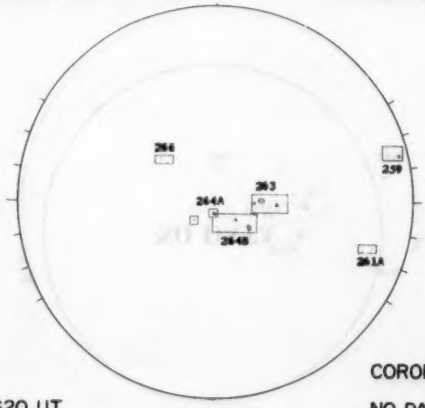
1218 UT

Sp

SACRAMENTO PEAK

Np

SUNSPOTS



E

W

1620 UT

Sp

CORONA

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

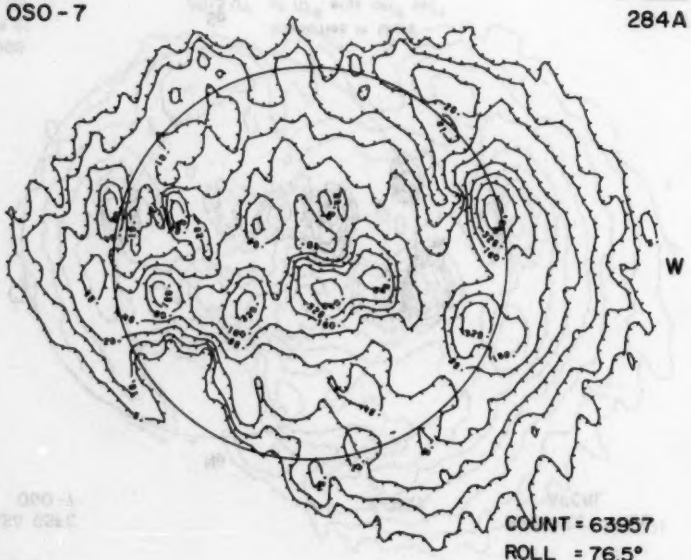
W

1004 UT

Sp

NASA GSFC
OSO-7

Np



E

W

COUNT = 63957
ROLL = 76.5°
P-TH = -1.10

1750 UT

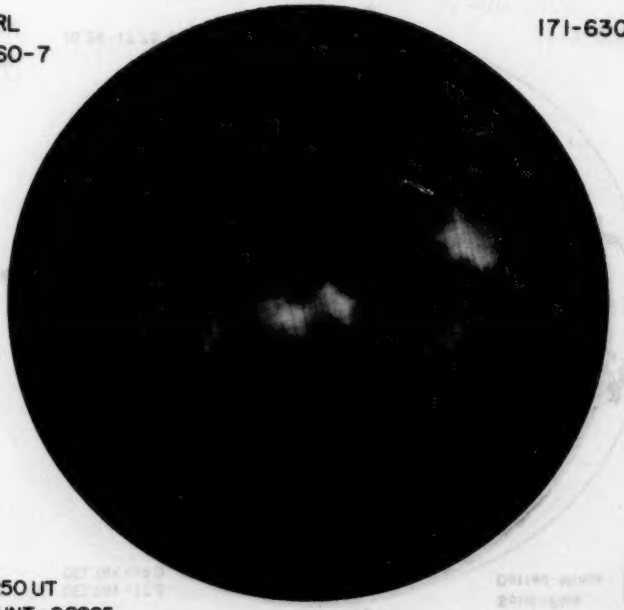
Sp

FE XV
284A

NRL
OSO-7

Np

171-630A



E

W

0250 UT
COUNT = 28895

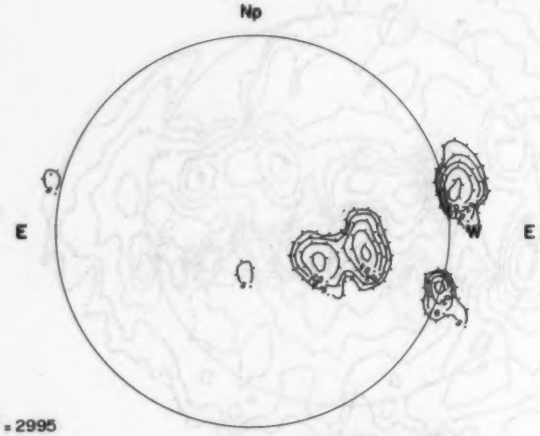
Sp

57
Mar 73

MARCH 15, 1973 (P=-24.46, B_o=-7.16, L_o=319.94)

NASA GSFC
OSO-7

X-RAY



COUNT = 2995
ROLL = 74.2°
P-TH = -1.23

2013 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

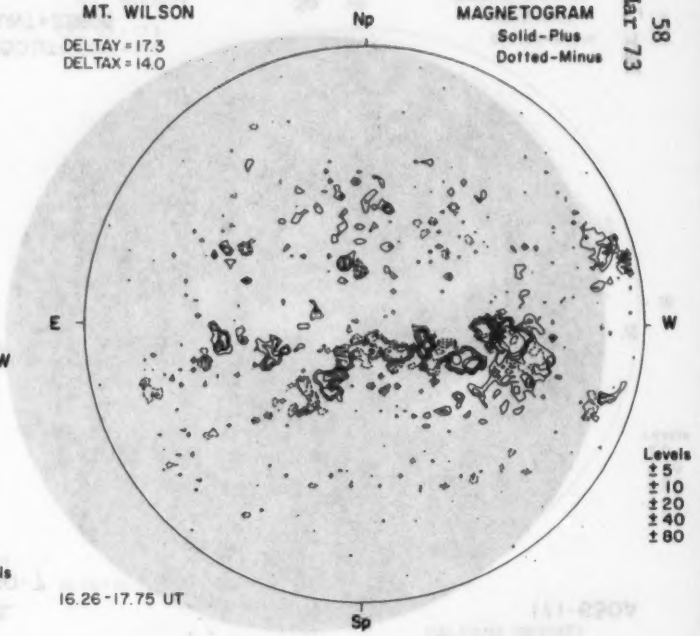
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.3
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

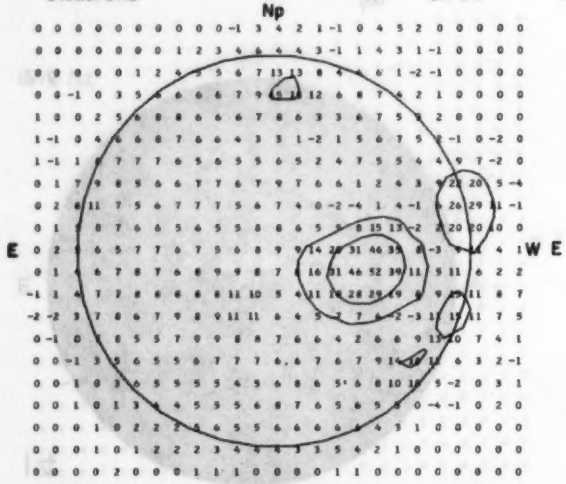


Levels
±5
±10
±20
±40
±80

16.26-17.75 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

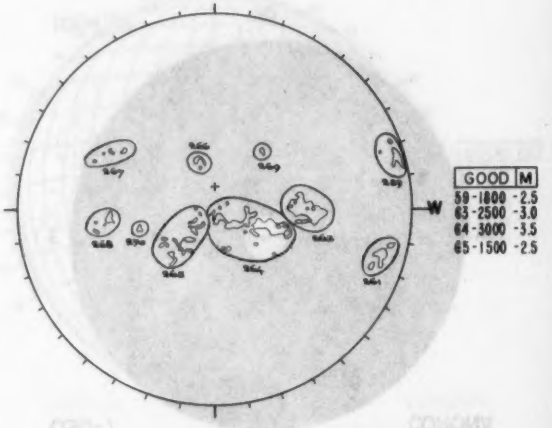
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

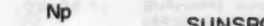
CALCIUM REPORT



1245 UT

BOULDER

BOULDER



SUNSPOTS

20-21 UT Brightness Unit 5,000° K

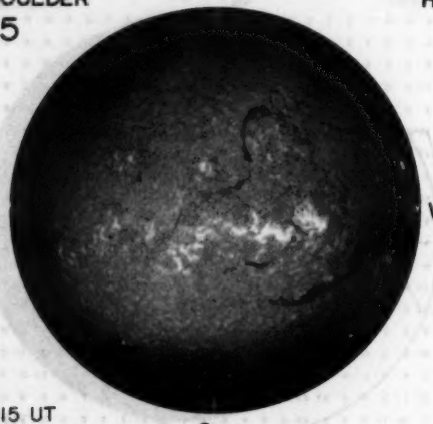
02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K

1245 UT

BOULDER 15

Np

Hα



E W

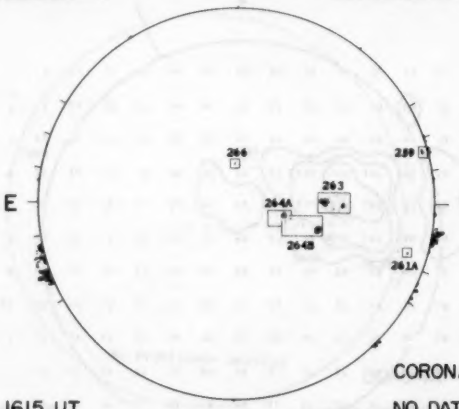
1615 UT

Sp

BOULDER

Np

SUNSPOTS



E W

CORONA NO DATA

1615 UT

Sp

NRL OSO-7

Np

WHITE-LIGHT CORONA

E W

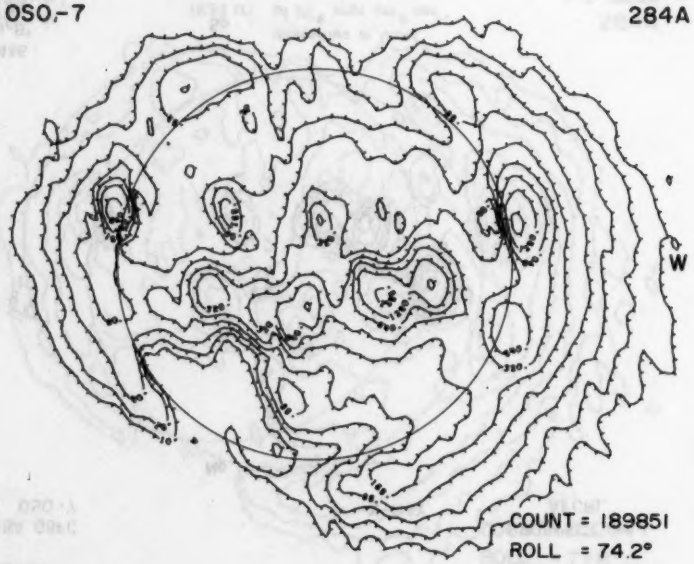
1343 UT

Sp

NASA GSFC OSO-7

Np

FE XV 284A



E W

COUNT = 189851

ROLL = 74.2°

P-TH = -1.23

2005 UT

Sp

NRL OSO-7

Np

171-630A

E W

1901 UT

COUNT = 33598

Sp

MARCH 16, 1973 (P=-24.62, B_o=-7.14, L_o=306.76)

60 Mar 73

NASA GSFC
OSO-7

X-RAY

Np

E

W

Sp

COUNT = 3436
ROLL = 71.8°
P-TH = -1.34

1634 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

Np

E

W

Sp

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Np

E

W

Sp

16.44-17.93 UT

Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

Np

E

W

Sp

20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

E

W

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CALCIUM REPORT

CATANIA

Np

E

W

Sp

0808 UT

GOOD	GD
62-2974	---
64-3615	---
65-12066	---
66-0892	---

BOULDER

Np

E

W

Sp

Hα

BOULDER

Np

E

W

Sp

SUNSPOTS

Np

E

W

Sp

20-21 UT

Brightness Unit 5,000° K

02-03 UT

Resolution 3 Minutes of Arc

Brightness Unit 1,700° K

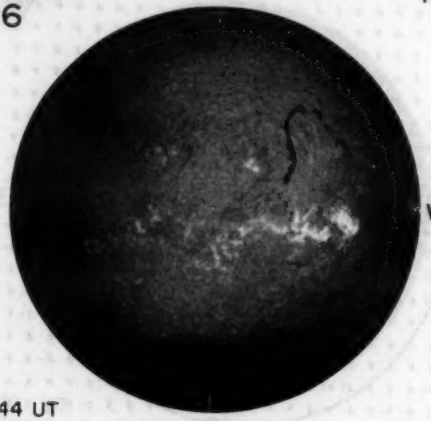
0808 UT

BOULDER

16

Np

Hα



E

W

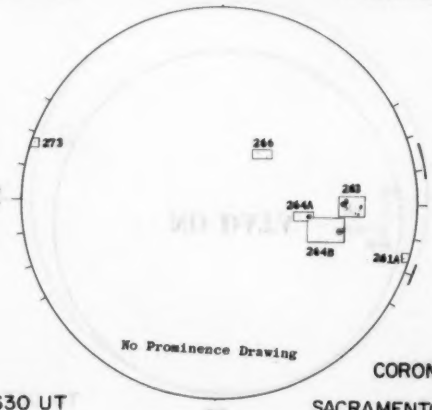
1644 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1630 UT

Sp

CORONA

SACRAMENTO PEAK

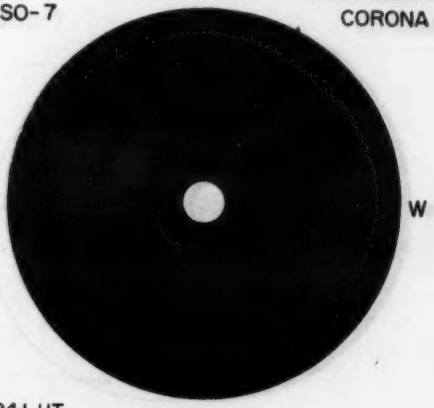
NRL

OSO-7

Np

WHITE-LIGHT

CORONA



E

W

0941 UT

Sp

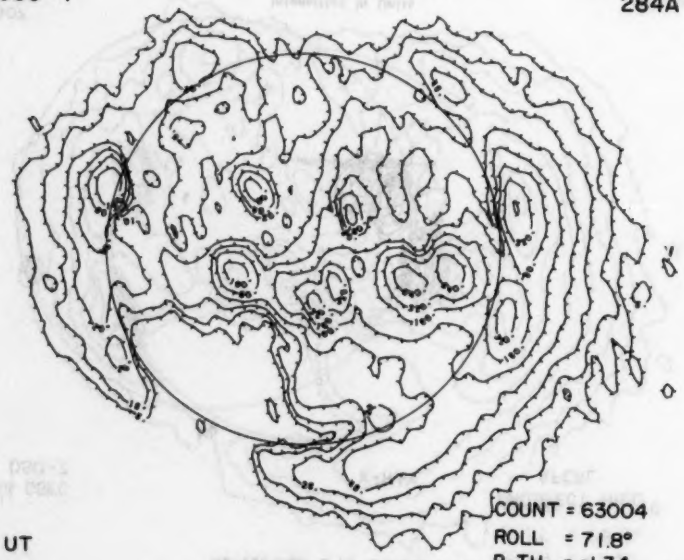
NASA GSFC

OSO-7

Np

FE XV

284A



E

1626 UT

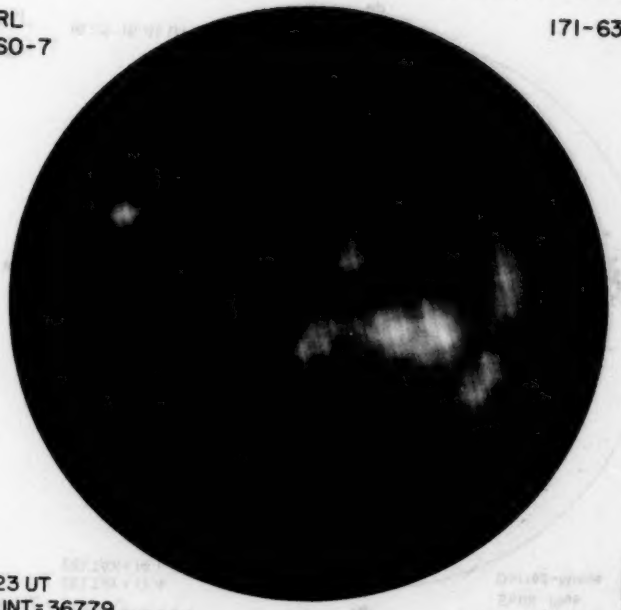
Sp

NRL

OSO-7

Np

171-630A



E

W

1623 UT

COUNT = 36779

Sp

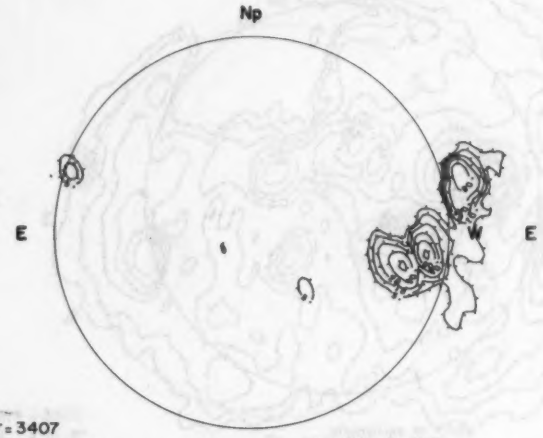
61

Mar 73

MARCH 17, 1973 (P=-24.77, B_o=-7.12, L_o=293.58)

NASA GSFC
OSO-7

X-RAY



COUNT=3407
ROLL =69.0°
P-TH =-1.45

1516 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

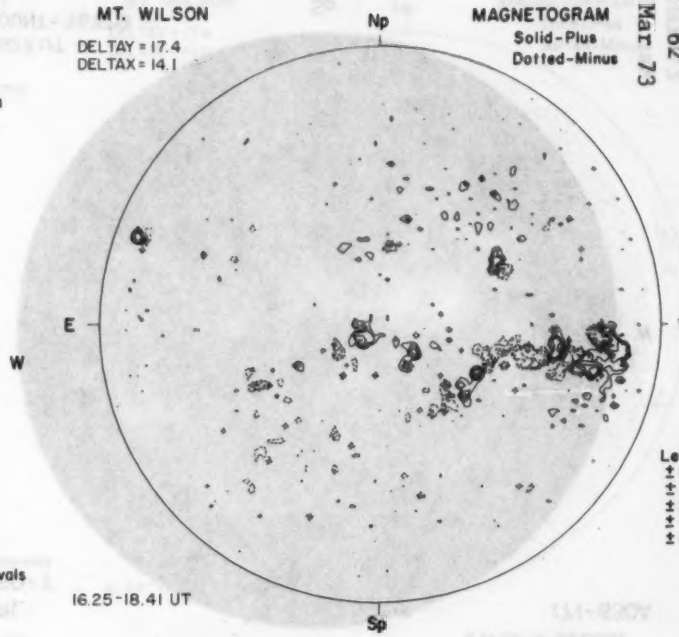
Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

62
Mar 73

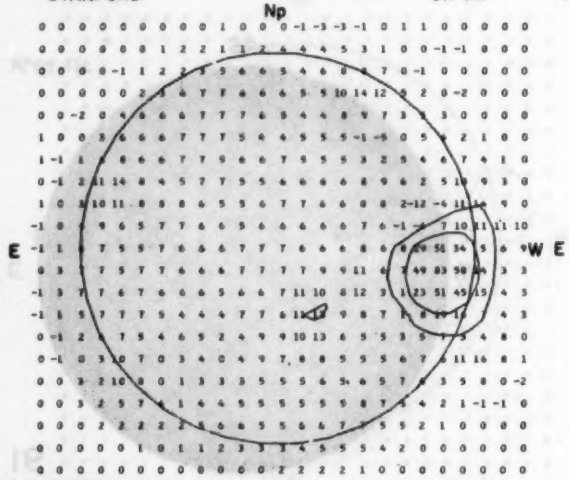


Levels
±5
±10
±20
±40
±80

16.25-18.41 UT

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

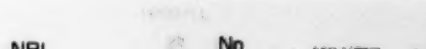
CALCIUM REPORT

BOULDER

Hα

BOULDER

SUNSPOTS



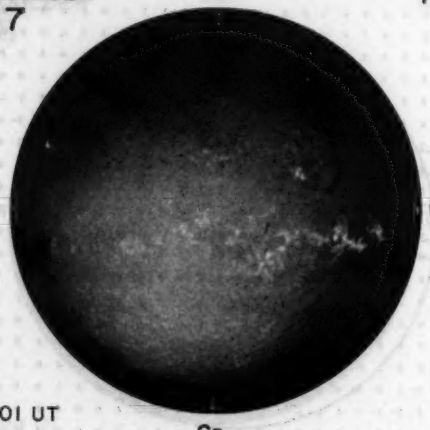
20-21 UT
Brightness Unit 5,000° K

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

BOULDER
17

Np

Hα



E

W

1701 UT

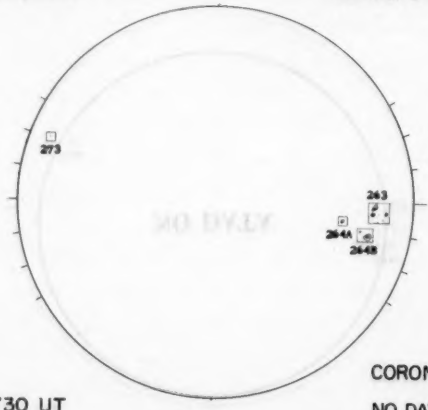
Sp

Np

BOULDER

Np

SUNSPOTS



E

W

1730 UT

Sp

CORONA

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

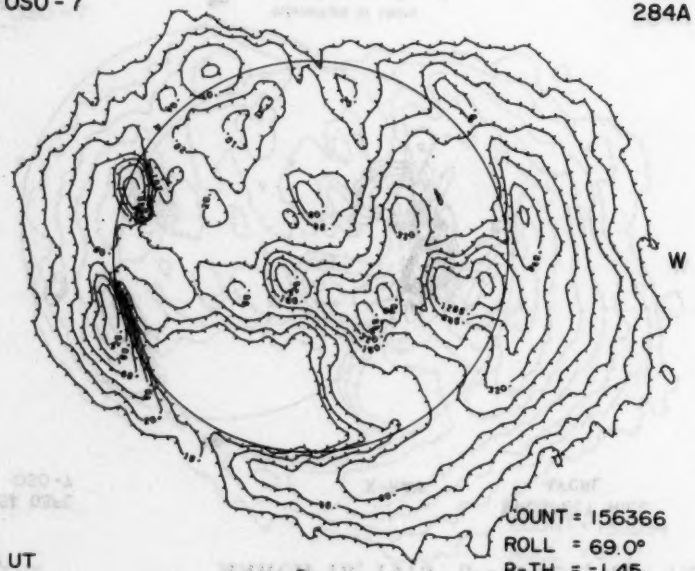
W

1015 UT

Sp

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 156366
ROLL = 69.0°
P-TH = -1.45

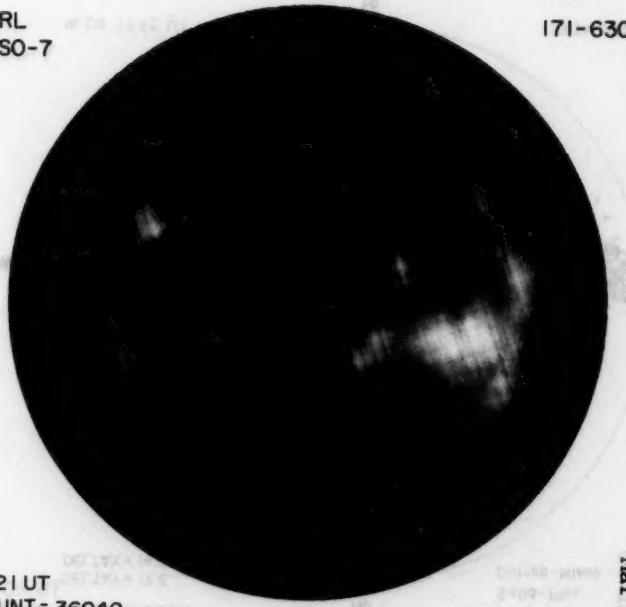
1516 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

1521 UT
COUNT = 36040

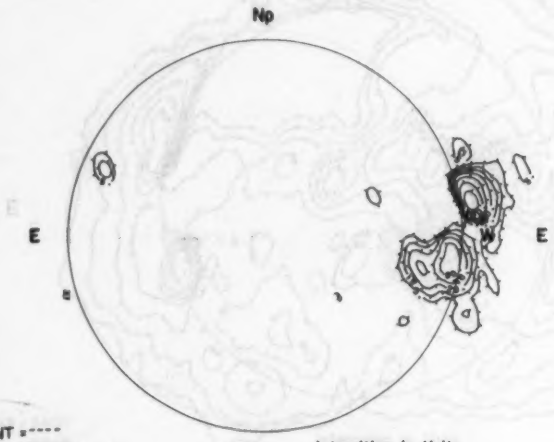
Sp

63
Mar 73

MARCH 18, 1973 (P=-24.92, B_o=-7.09, L_o=280.39)

NASA GSFC
OSO-7

X-RAY



COUNT =----
ROLL =67.1°
P-TH =-1.52

0327 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

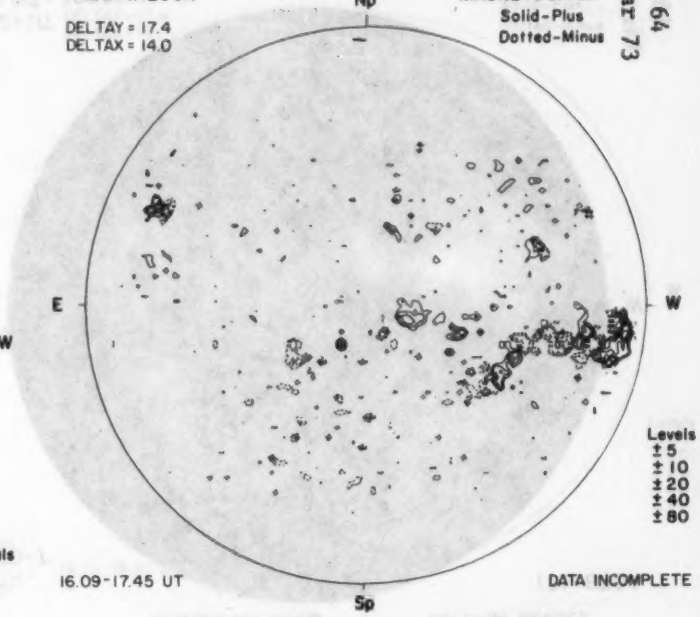
Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Mar 73 64



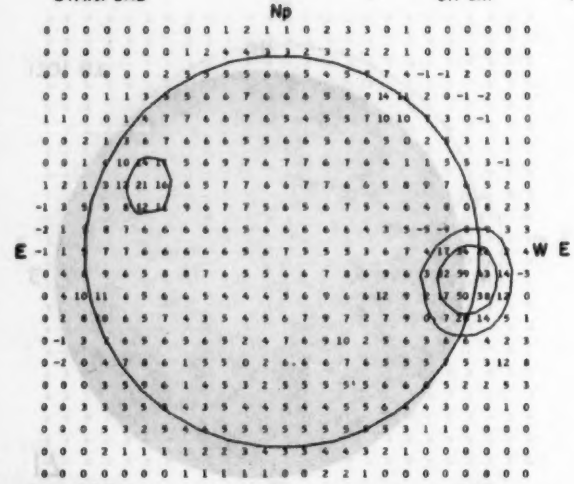
Levels
±5
±10
±20
±40
±80

16.09-17.45 UT

DATA INCOMPLETE

STANFORD

9.1 cm

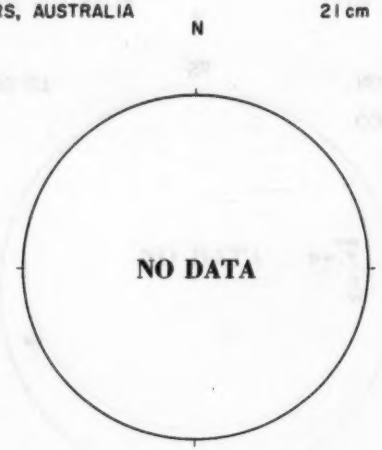


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

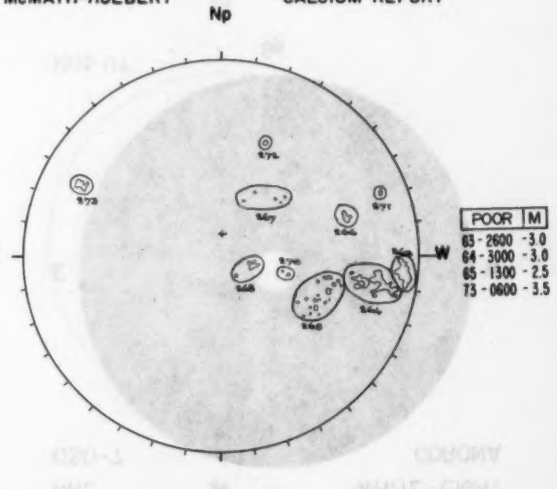


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1600 UT

BOULDER

Hα

BOULDER

SUNSPOTS

Sp

20-21 UT

Brightness Unit 5,000° K

02-03 UT

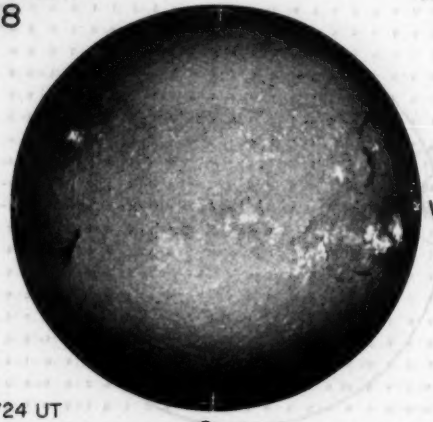
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1600 UT

BOULDER
18

Np

Hα



E

W

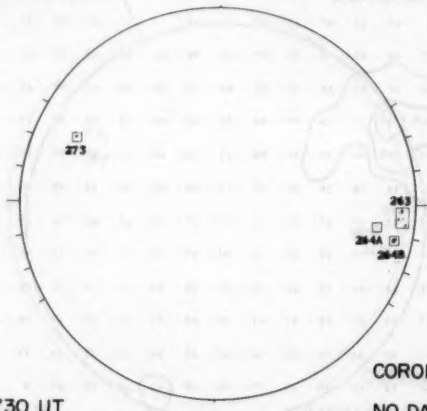
1724 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA

NO DATA

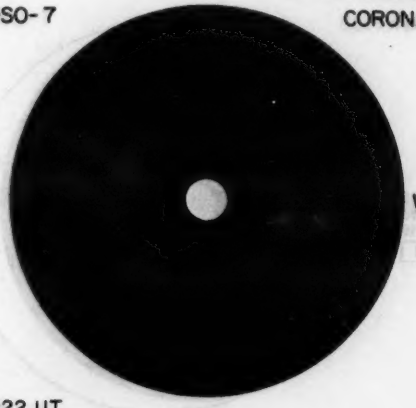
1730 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

W

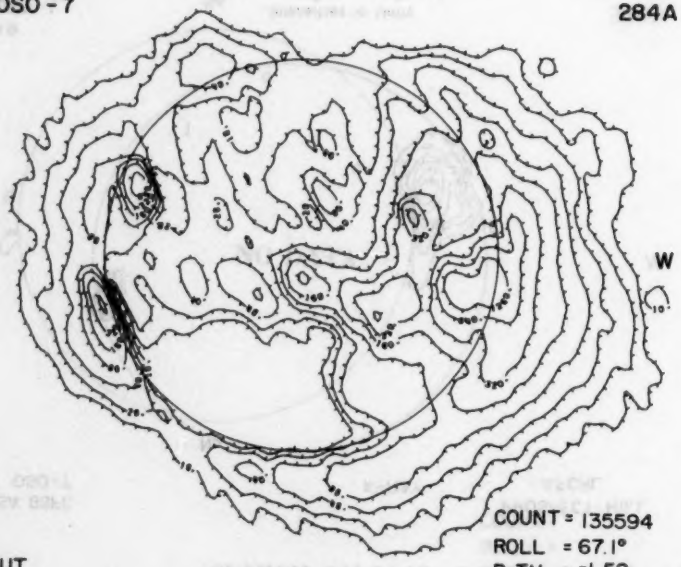
1222 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

COUNT = 135594
ROLL = 67.1°
P-TH = -1.52

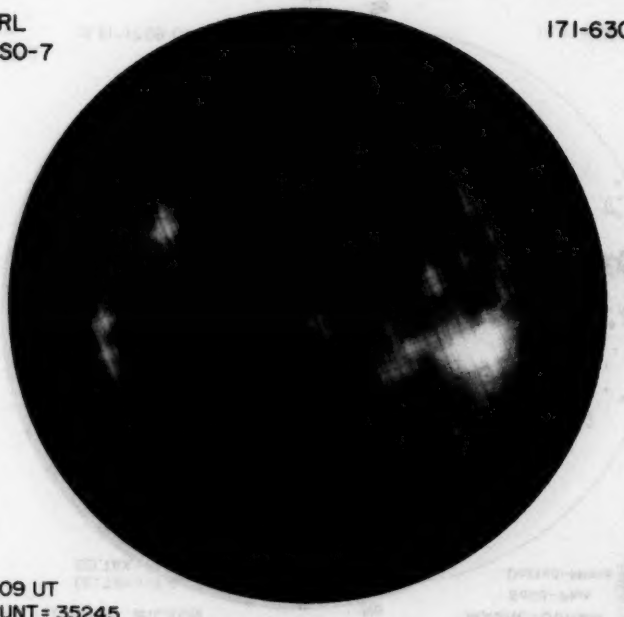
0327 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

1709 UT
COUNT = 35245

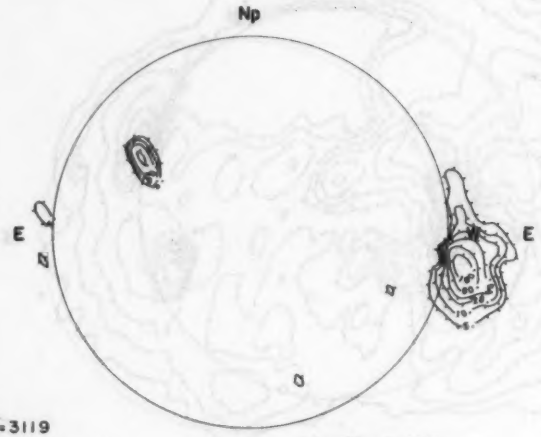
Sp

65
Mar 73

MARCH 19, 1973 (P=-25.06, B_o=-7.07, L_o=267.21)

NASA GSFC
OSO-7

X-RAY



COUNT=3119
ROLL =61.6°
P-TH =-1.72

2051 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

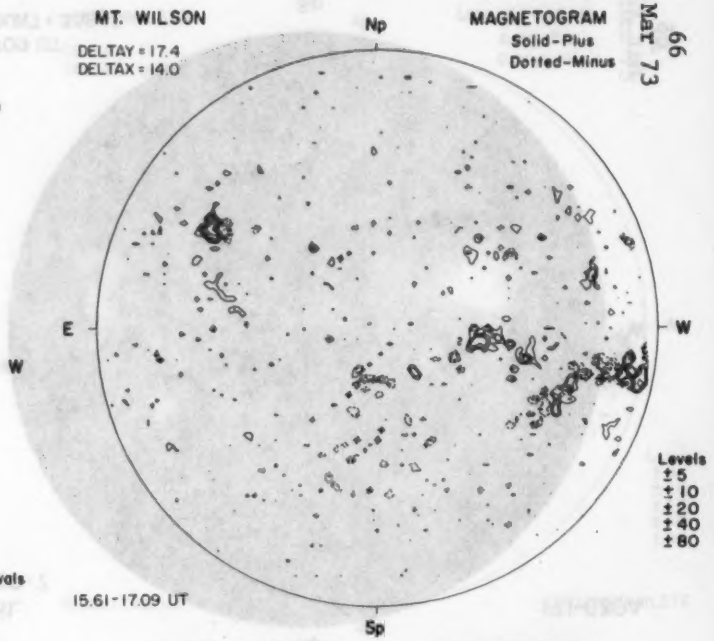
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

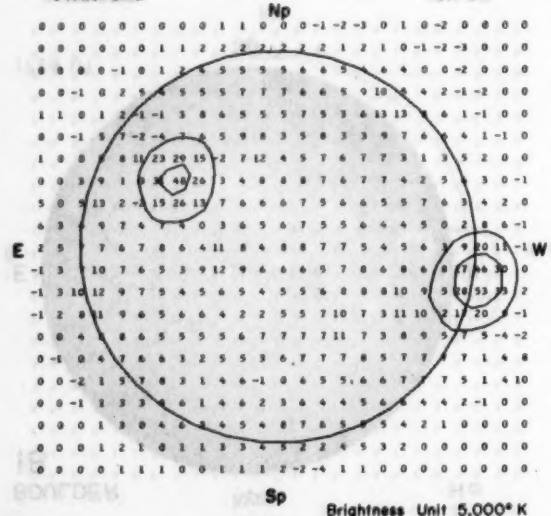


Levels
±5
±10
±20
±40
±80

15.61-17.09 UT

STANFORD

9.1 cm

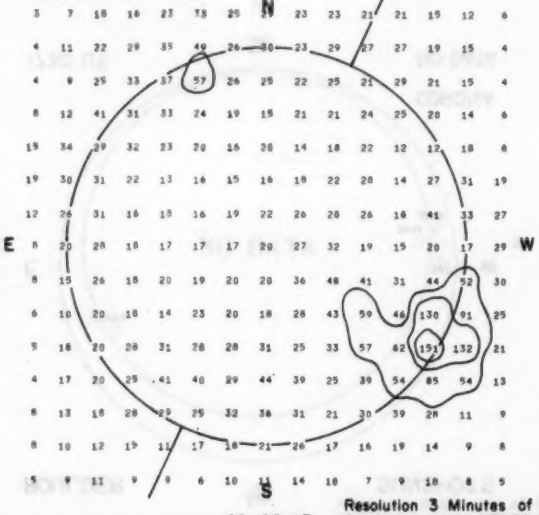


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

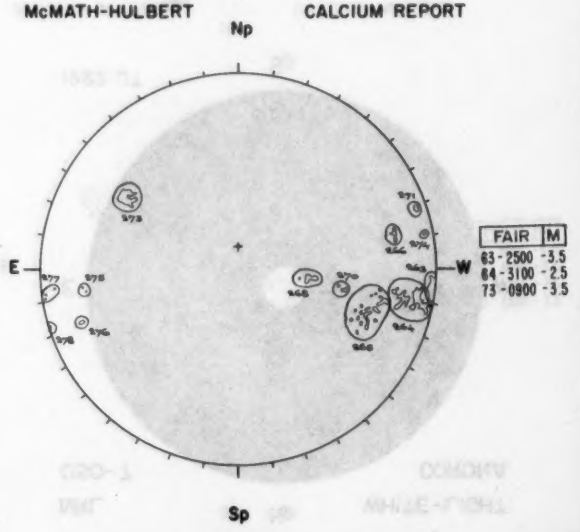


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1600 UT

Sp
20-21 UT
Brightness Unit 5,000° K

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1600 UT

BOULDER
19

Np

Hα

E

NO DATA

W

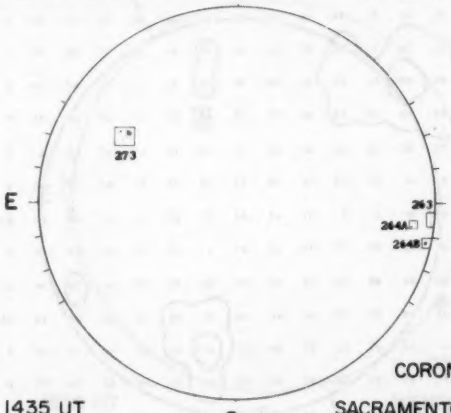
Sp

Np

SACRAMENTO PEAK

Np

SUNSPOTS



1435 UT

Sp

CORONA
SACRAMENTO PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

1125 UT

Sp

NASA GSFC
OSO-7

FE XV
284A

NRL
OSO-7

Np

171-630A

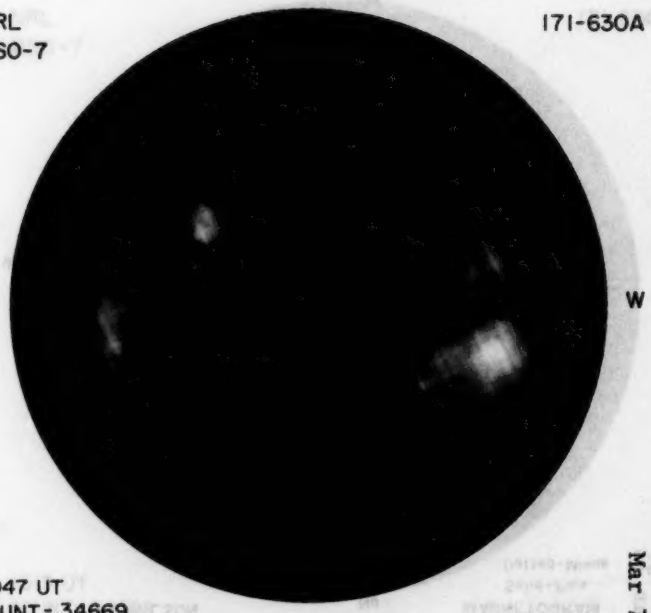
E

NO DATA

W

Sp

COUNT =
ROLL =
P-TH =



2047 UT
COUNT = 34669

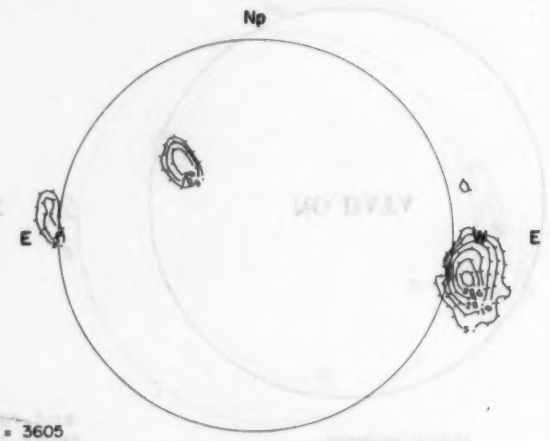
Sp

67
Mar 73

MARCH 20, 1973 (P=-25.19, B_o=-7.04, L_o=254.03)

NASA GSFC
OSO-7

X-RAY



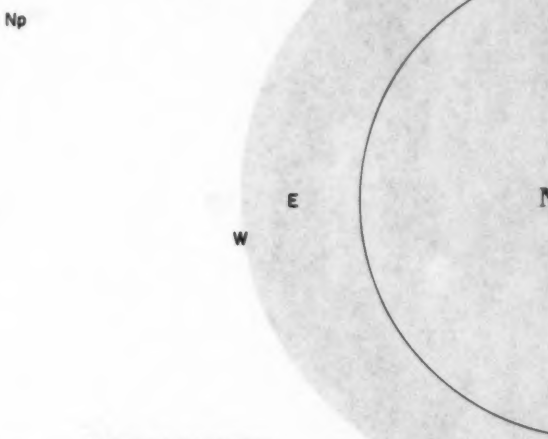
COUNT = 3605
ROLL = 58.2°
P-TH = -1.82

1525 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

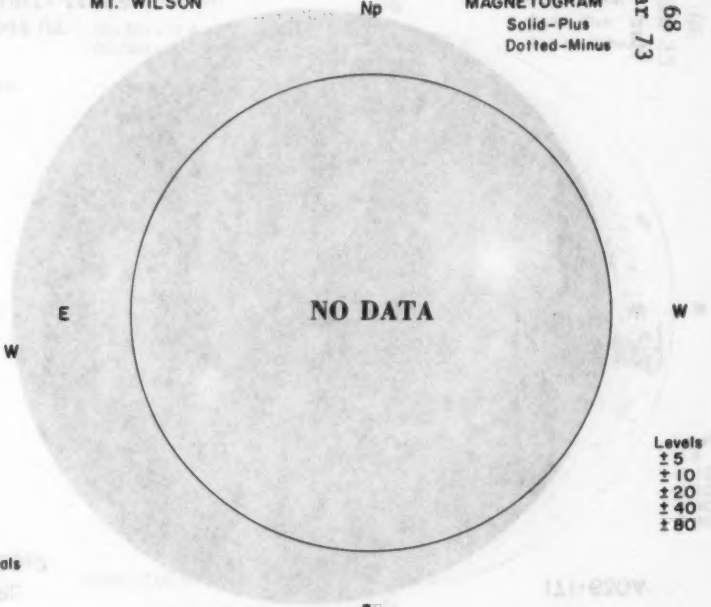
8.6 mm



Contours in Intervals of 200° K

MT. WILSON

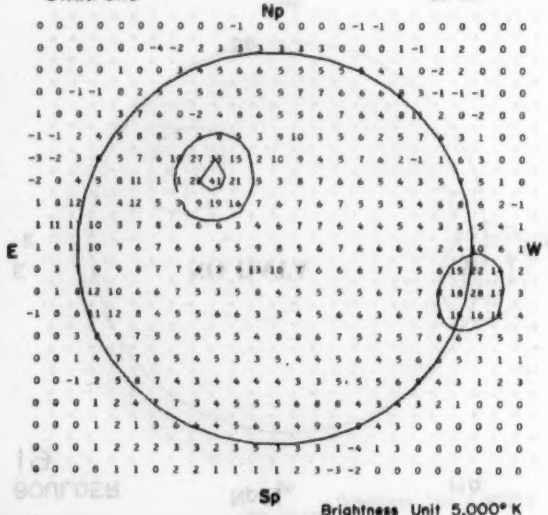
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

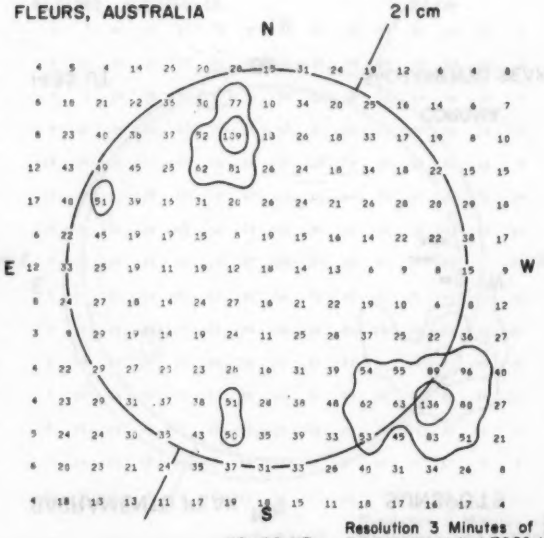


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

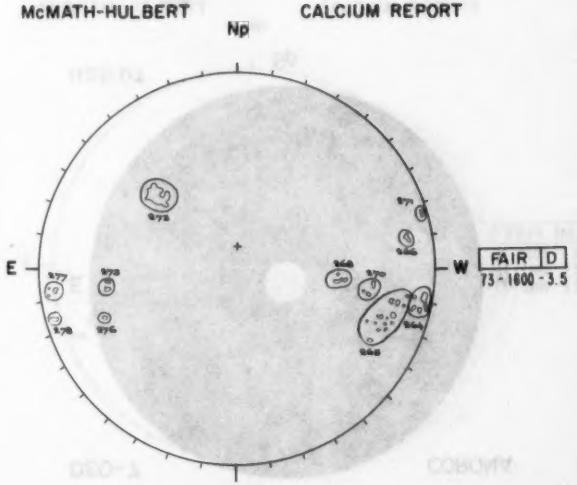


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1230 UT

BOULDER

Hα

BOULDER

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT
Brightness Unit 5,000° K

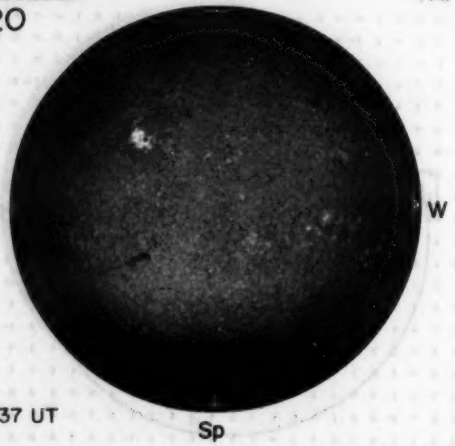
02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1230 UT

BOULDER
20

Np

Hα

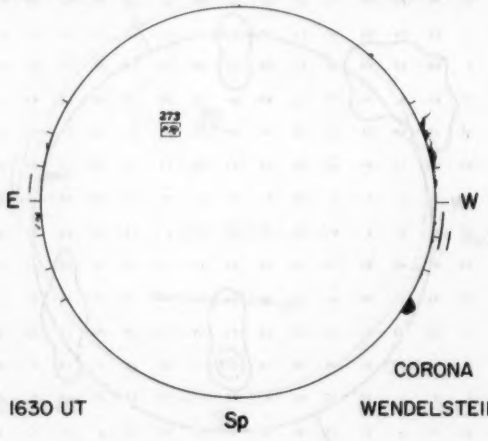


1637 UT

BOULDER

Np

SUNSPOTS



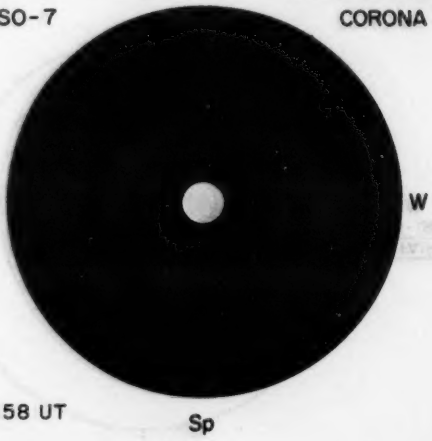
CORONA
WENDELSTEIN

1630 UT

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

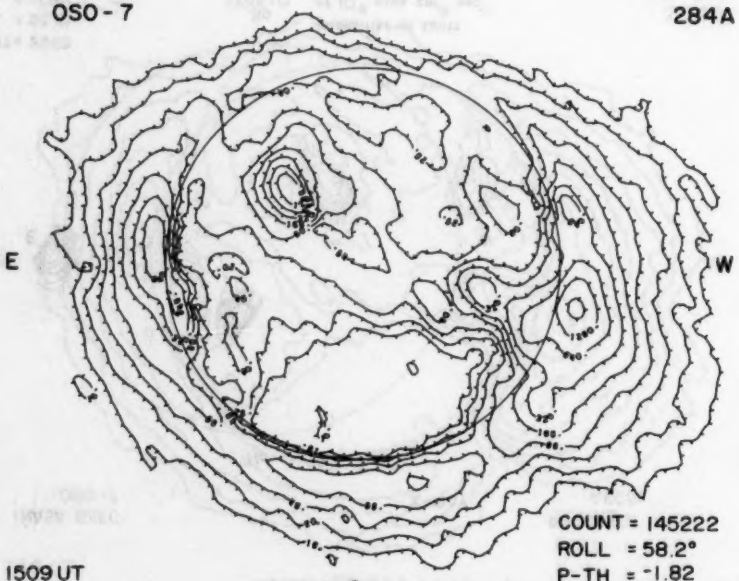


1158 UT

Np

NASA GSFC
OSO-7

FE XV
284A



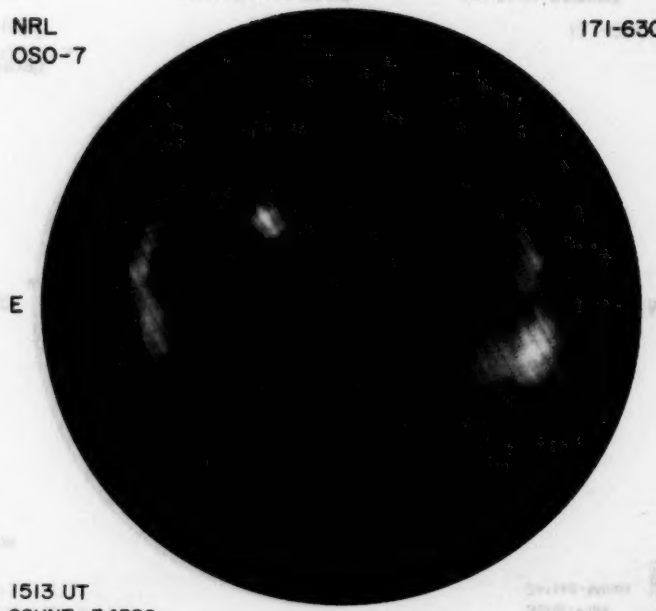
COUNT = 145222
ROLL = 58.2°
P-TH = -1.82

1509 UT

Np

NRL
OSO-7

171-630A



1513 UT
COUNT = 34592

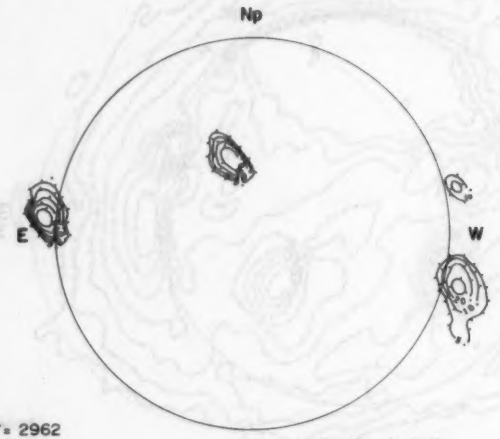
69
Mar 73

MARCH 21, 1973 (P=-25.31, B_o=-7.01, L_o=240.84)

70 Mar 73

NASA GSFC
OSO-7

X-RAY



COUNT = 2962
ROLL = 53.8°
P-TH = -1.95

1746 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

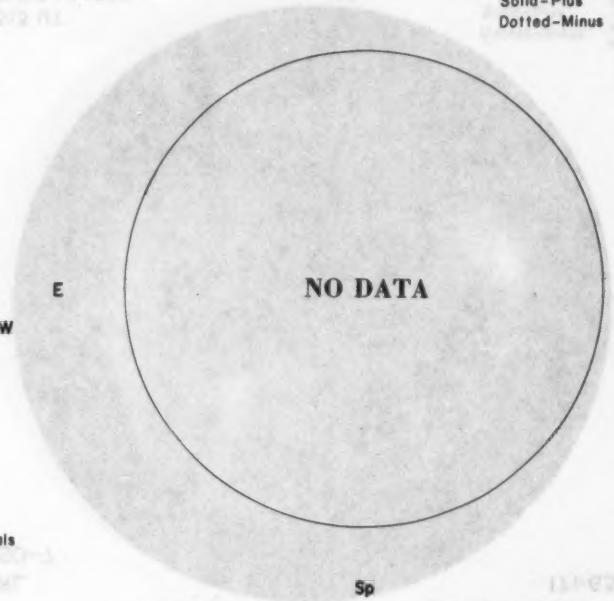
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

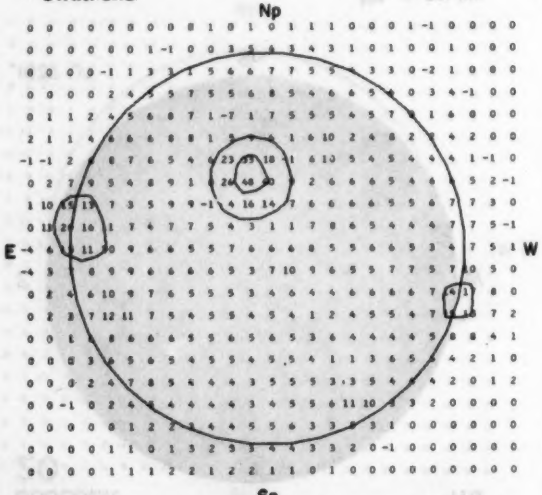
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

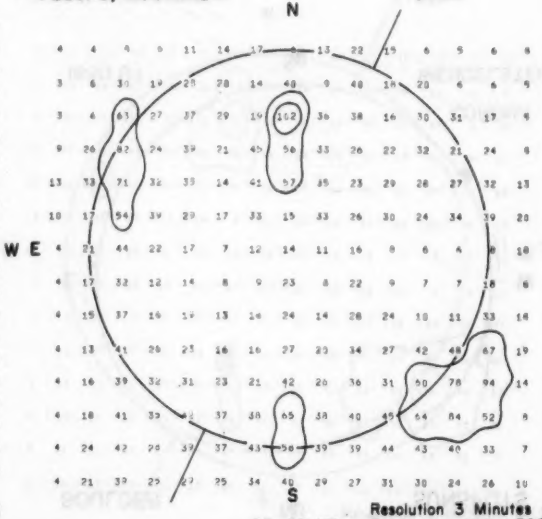


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

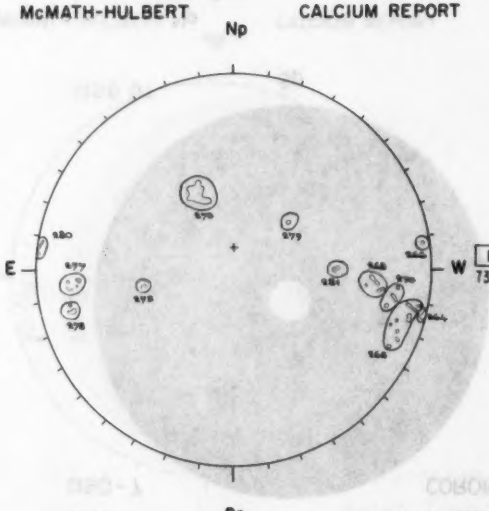


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR | D
73 - 1500 - 3.5

1250 UT

BOULDER

Hα

BOULDER

SUNSPOTS

NRL

WHITE LIGHT

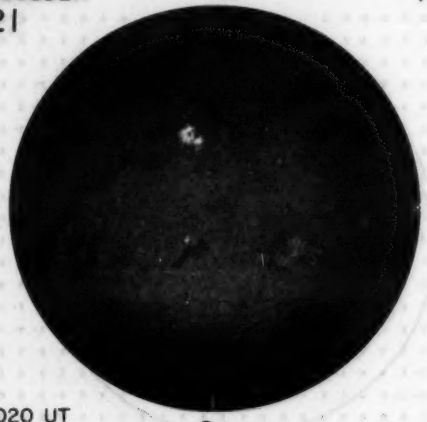
20-21 UT Brightness Unit 5,000° K

02-03 UT Brightness Unit 1,700° K

1250 UT

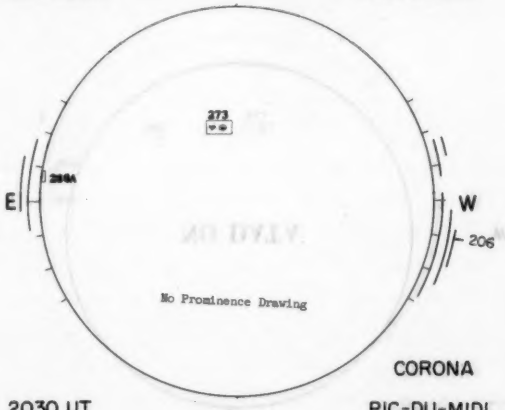
BOULDER Np Hα

21



2020 UT

BOULDER Np SUNSPOTS



2030 UT Sp

CORONA

PIC-DU-MIDI

NRL Np WHITE-LIGHT

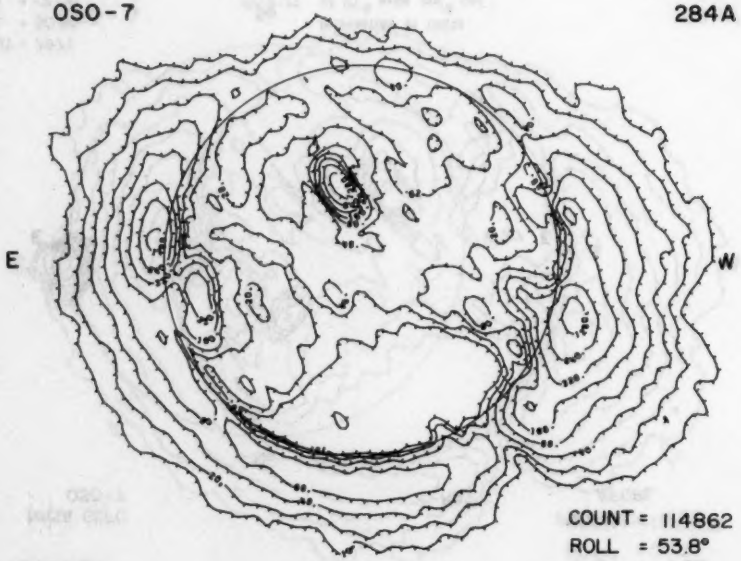
OSO-7 CORONA

1101 UT

Np

NASA GSFC

OSO-7



1746 UT

COUNT = 114862

ROLL = 53.8°

P-TH = -1.95

FE XV

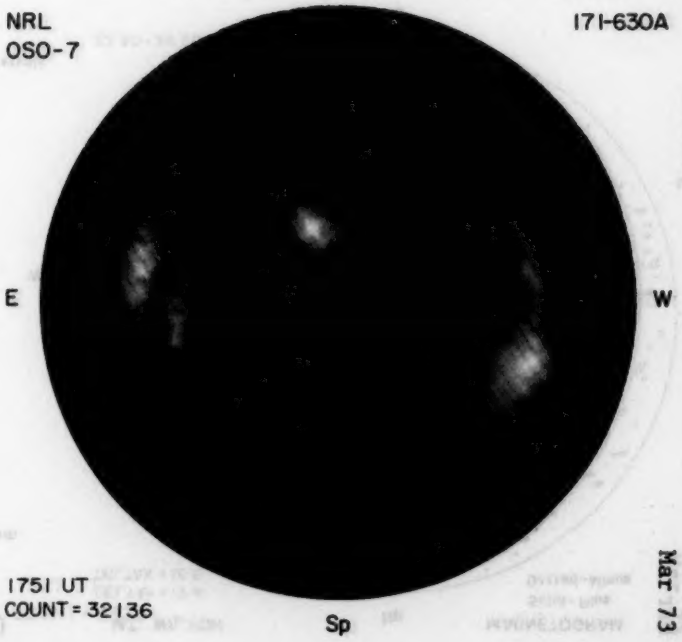
284A

Np

NRL

OSO-7

171-630A



1751 UT

COUNT = 32136

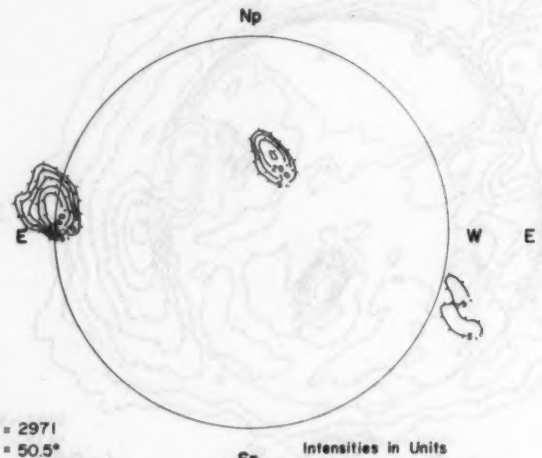
71

Mar 73

MARCH 22, 1973 (P=-25.43, B_o=-6.97, L_o=227.66)

NASA GSFC
OSO-7

X-RAY



COUNT = 2971
ROLL = 50.5°
P-TH = -2.06

1509 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

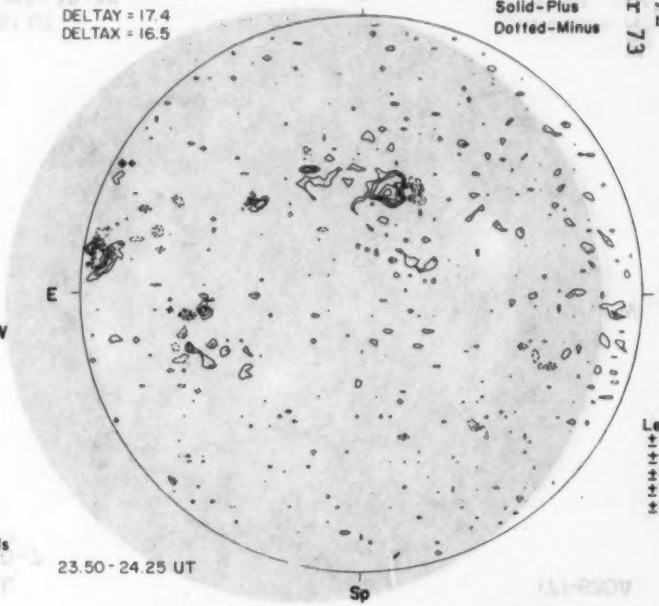
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 16.5

MAGNETOGRAM
Solid-Plus
Dotted-Minus



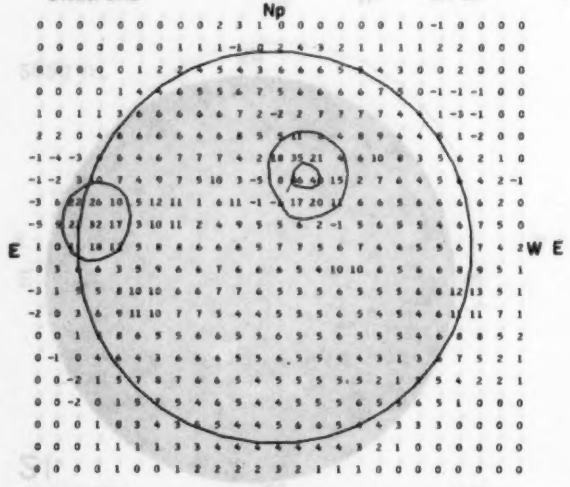
Levels
±5
±10
±20
±40
±80

23.50 - 24.25 UT

72
Mar 73

STANFORD

9.1 cm

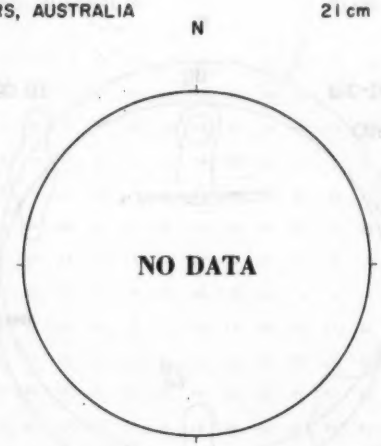


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

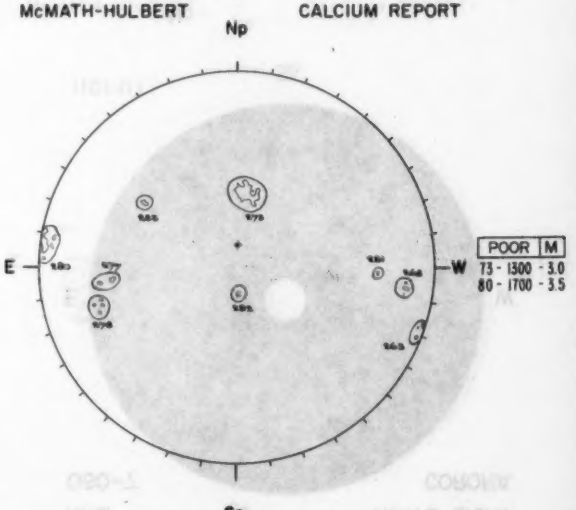


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

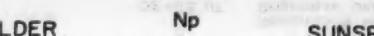


1300 UT

BOULDER

Hα

BOULDER



SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT Brightness Unit 3,000° K

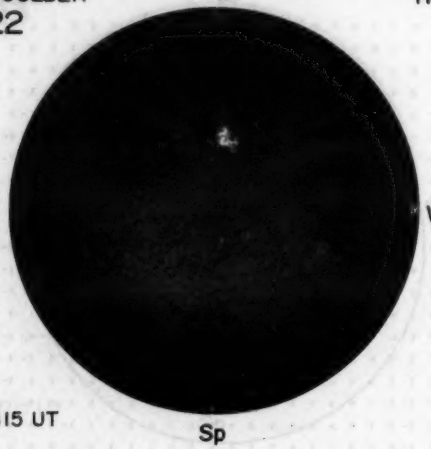
02-03 UT Brightness Unit 1,700° K

1300 UT

BOULDER
22

Np

Hα

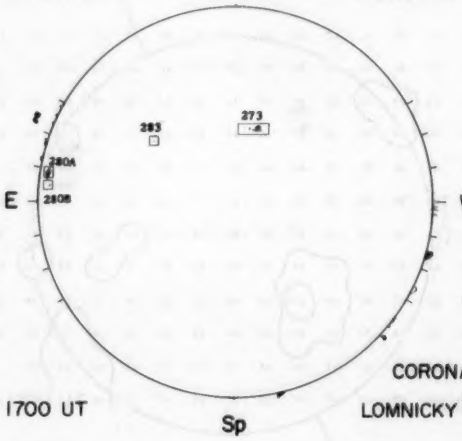


1815 UT

BOULDER

Np

SUNSPOTS



1700 UT

CORONA

LOMNICKY STIT

NRL
OSO-7

Np

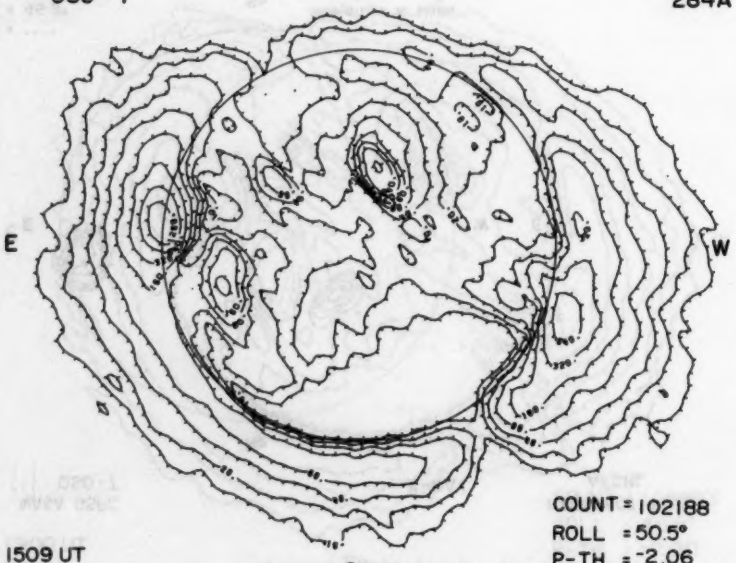
WHITE-LIGHT
CORONA

0831 UT

Np

NASA GSFC
OSO-7

FE XV
284A



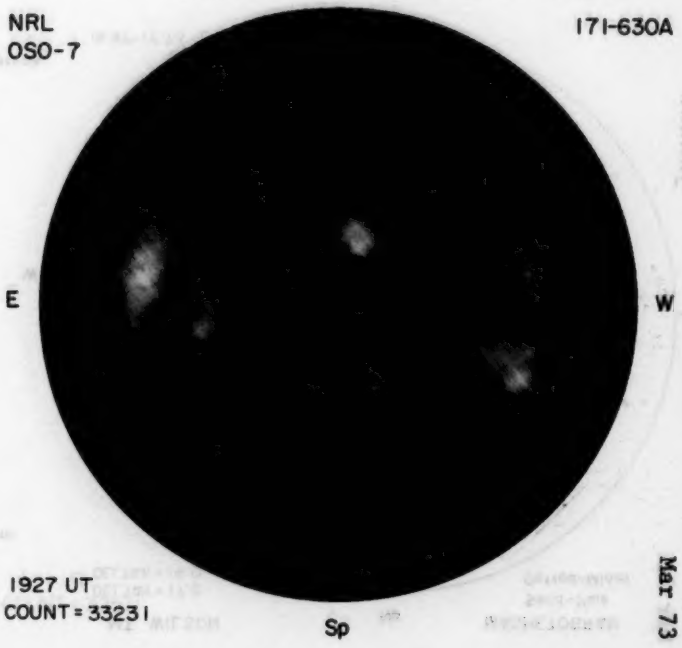
COUNT = 102188
ROLL = 50.5°
P-TH = -2.06

1509 UT

Np

NRL
OSO-7

171-630A



1927 UT
COUNT = 33231

73
Mar 73

MARCH 23, 1973 (P=-25.54, B_o=-6.94, L_o=214.47)

74
Mar 73

NASA GSFC
OSO-7

X-RAY

COUNT = ----
ROLL = 46.9°
P-TH = -2.20

1900 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

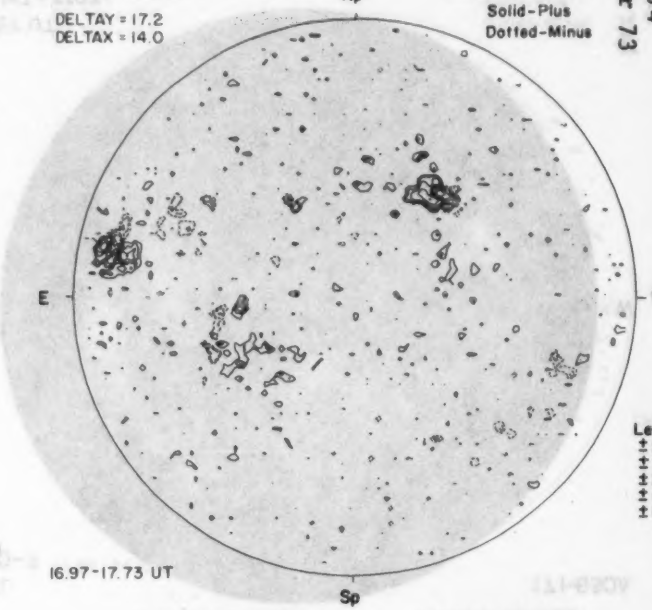
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.2
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

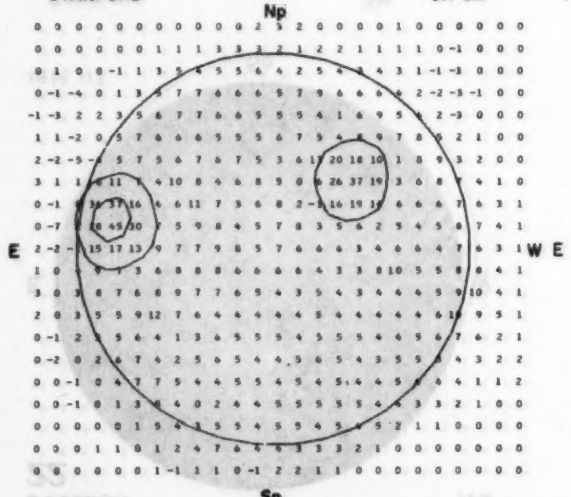


Levels
±5
±10
±20
±40
±80

16.97-17.73 UT

STANFORD

9.1 cm

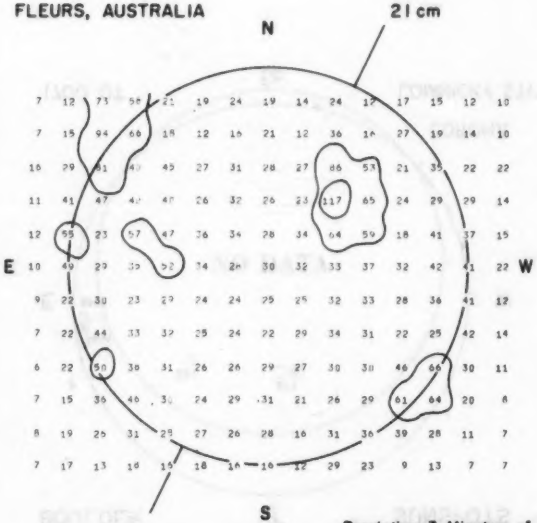


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

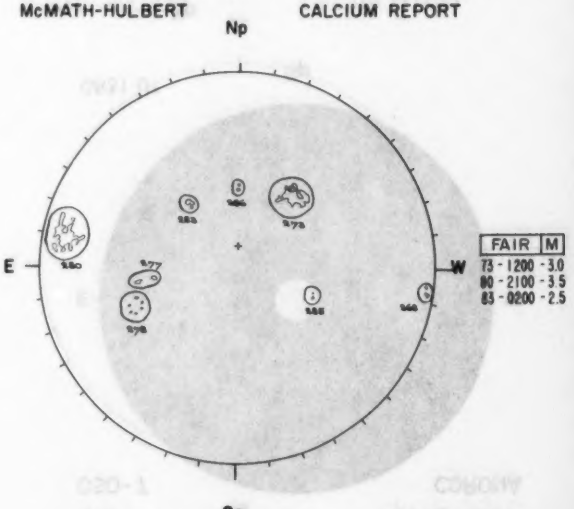


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

McMATH-HULBERT

CALCIUM REPORT



1400 UT

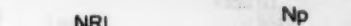
BOULDER

Hα

BOULDER

SUNSPOTS

NRL



WHITE-LIGHT

20-21 UT

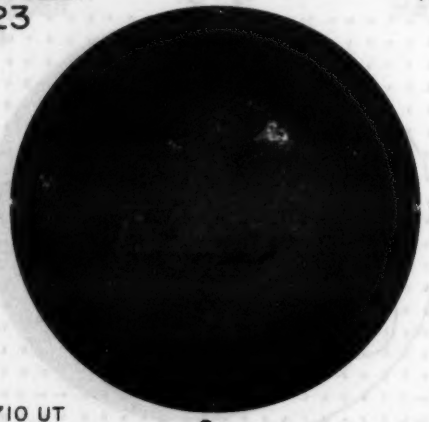
02-03 UT
Brightness Unit 1,700° K

1400 UT

BOULDER
23

Np

H α

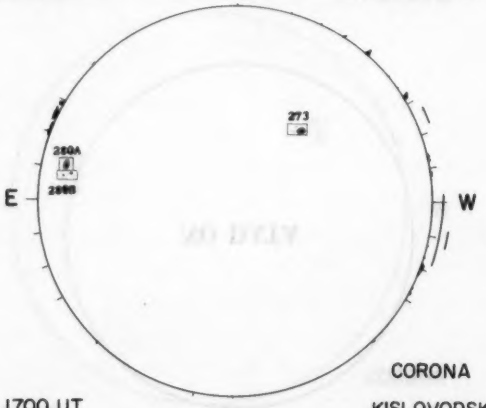


1710 UT

BOULDER

Np

SUNSPOTS



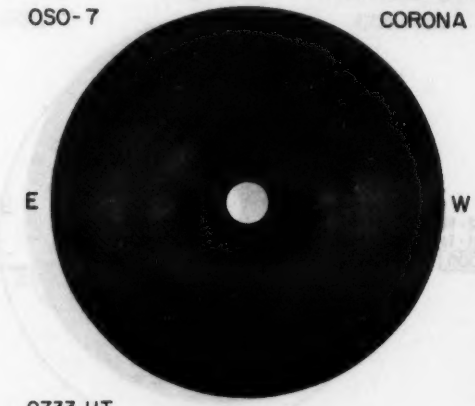
CORONA
KISLOVODSK

1700 UT

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

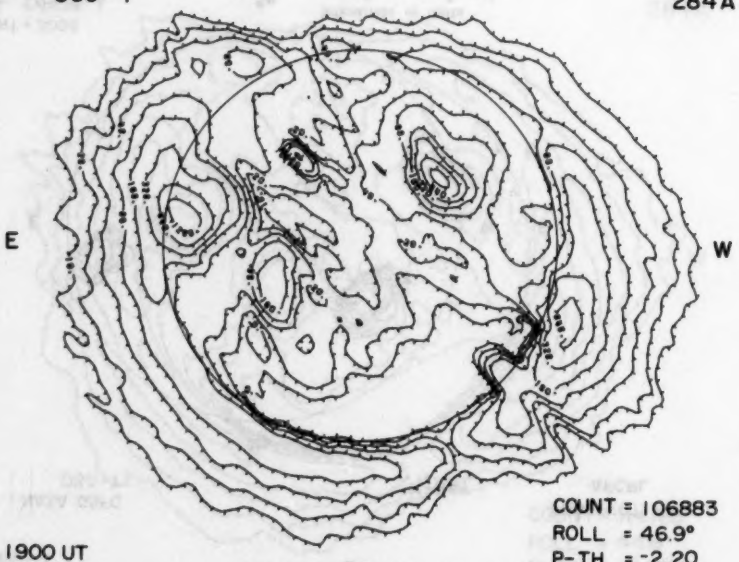


0733 UT

Np

NASA GSFC
OSO-7

FE XV
284A



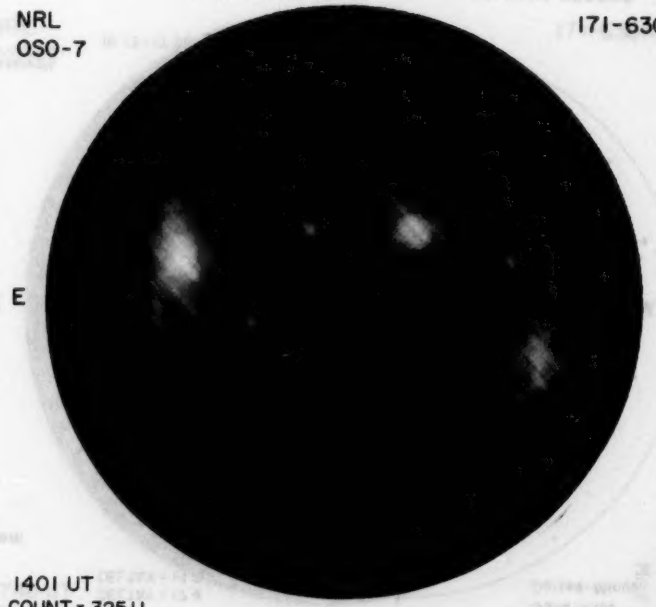
COUNT = 106883
ROLL = 46.9°
P-TH = -2.20

1900 UT

Np

NRL
OSO-7

171-630A



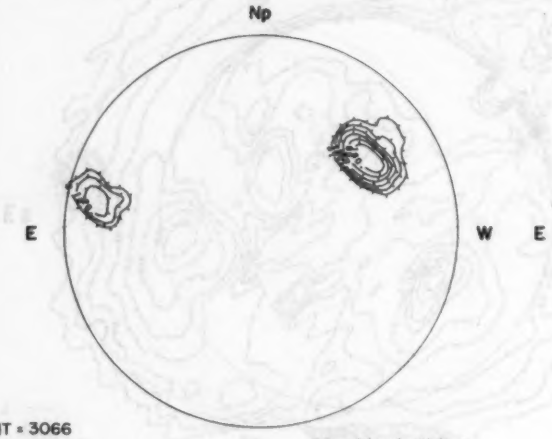
1401 UT
COUNT = 32511

75
Mar 73

MARCH 24, 1973 (P=-25.64, B_o=-6.90, L_o=201.28)

NASA GSFC
OSO-7

X-RAY



COUNT = 3066
ROLL = 44.8°
P-TH = -2.28

Intensities in Units
1157 UT of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

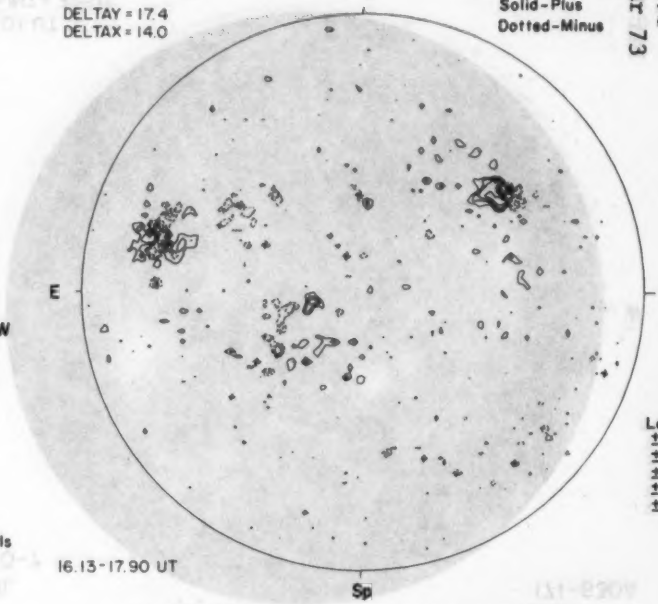
8.6 mm

Contours in Intervals
of 200° K

MT. WILSON
DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

76 Mar 73

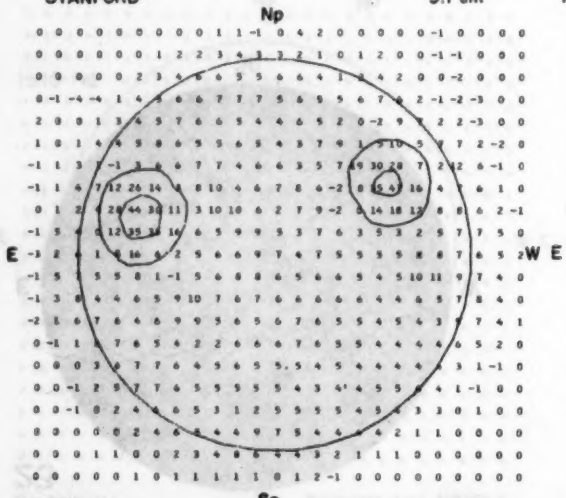


Levels
±5
±10
±20
±40
±80

16.13-17.90 UT

STANFORD

9.1 cm



Brightness Unit 5,000° K
20-21 UT

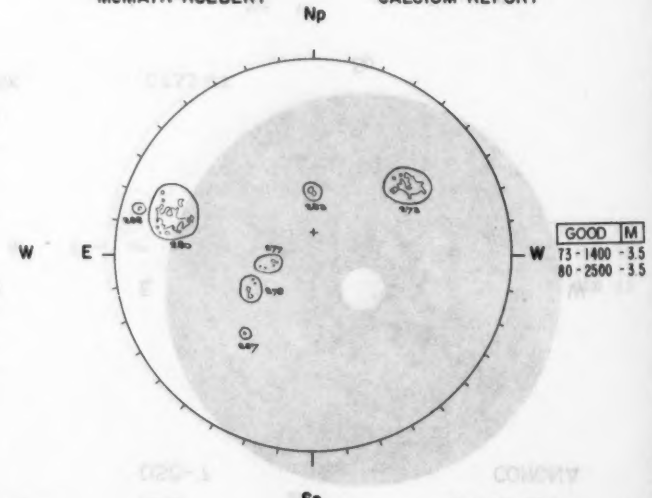
FLEURS, AUSTRALIA

21 cm

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K
02-03 UT

McMATH-HULBERT

CALCIUM REPORT



GOOD | M
73 - 1400 - 3.5
80 - 2500 - 3.5

1335 UT

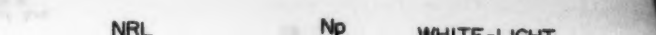
BOULDER

Hα

BOULDER

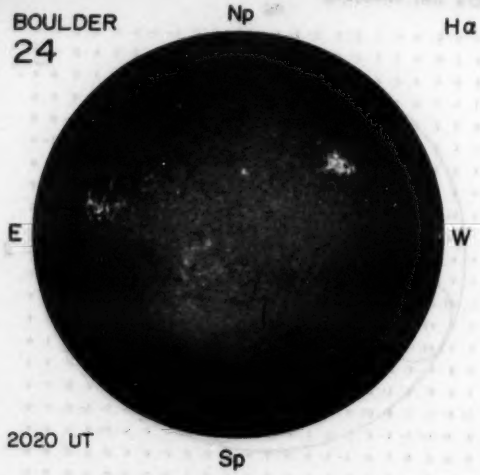
SUNSPOTS

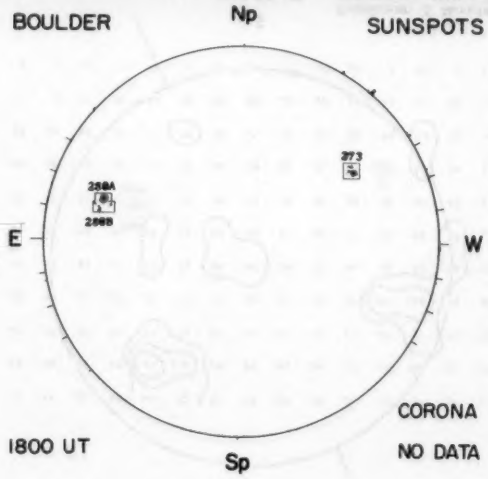
NRL

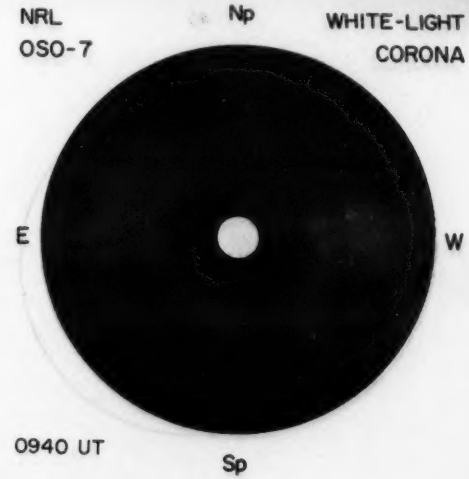


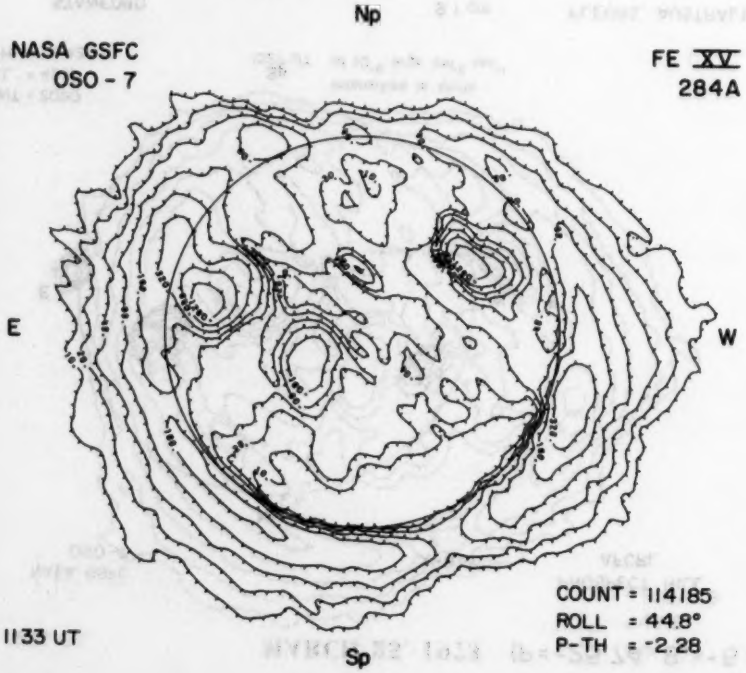
WHITE-LIGHT

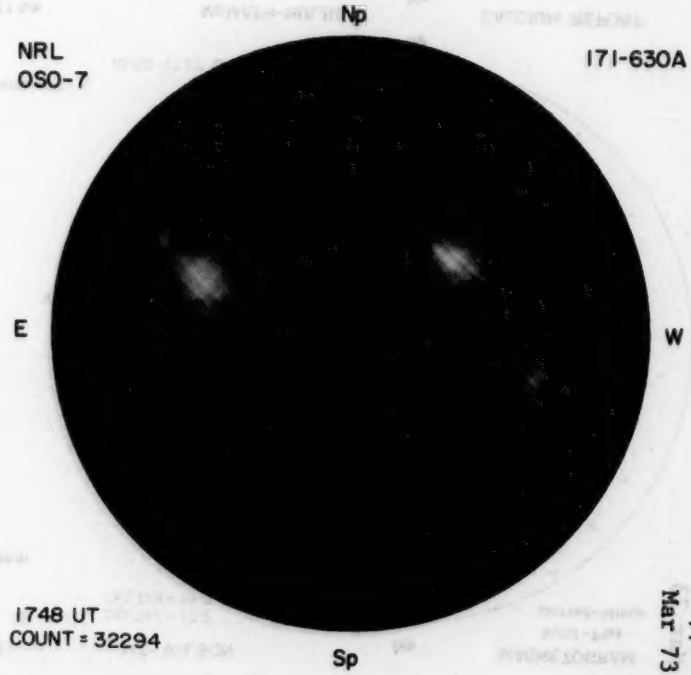
20-21 UT 02-03 UT Brightness Unit 1,700° K 1335 UT











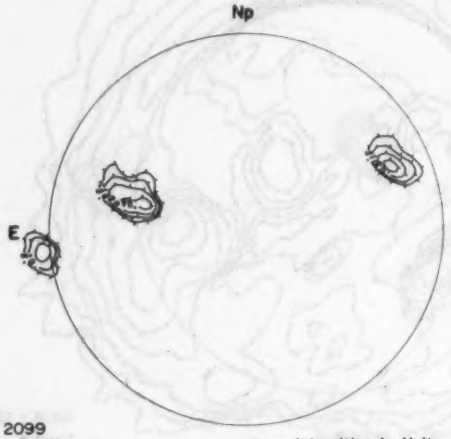
77
Mar 73

MARCH 25, 1973 (P = -25.74, B_o = -6.86, L_o = 188.10)

78 Mar 73

NASA GSFC
OSO-7

X-RAY



COUNT = 2099
ROLL = 42.8°
P-TH = -2.42

1527 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

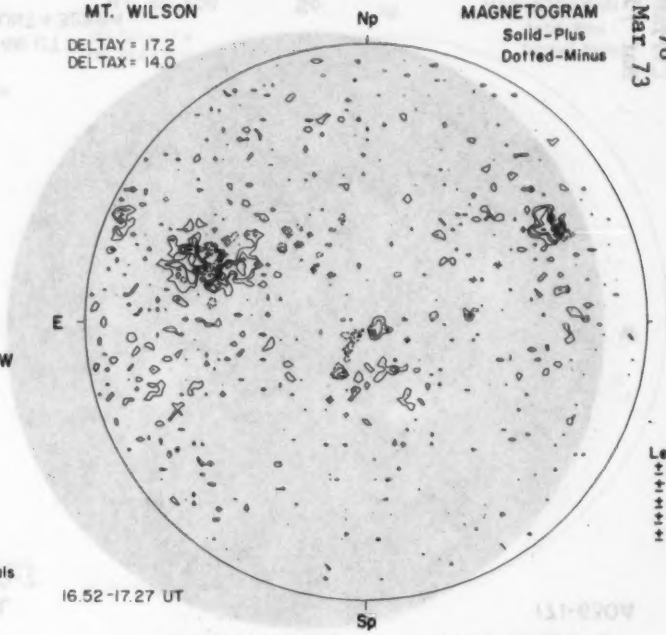
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.2
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

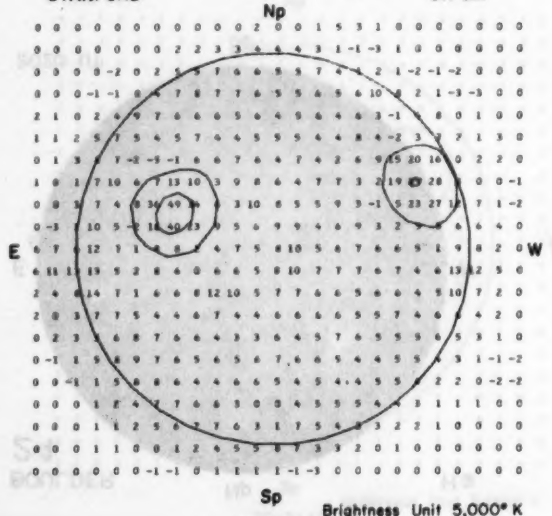


Levels
±5
±10
±20
±40
±80

16.52-17.27 UT

STANFORD

9.1 cm

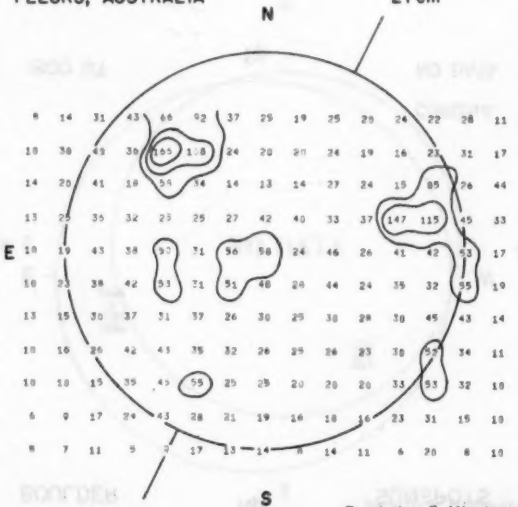


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

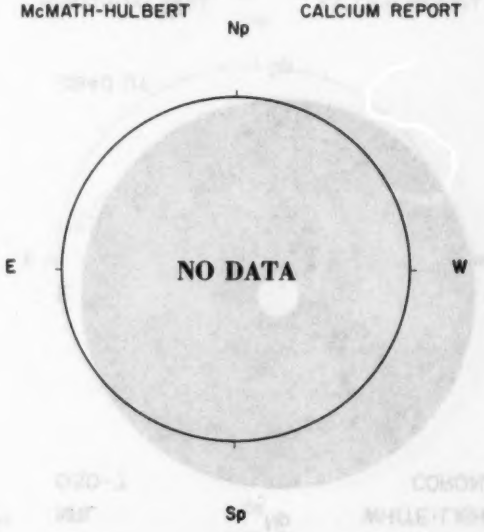


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



BOULDER

BOULDER

SUNSPOTS

Sp

20-21 UT

Brightness Unit 5,000° K

02-03 UT

Resolution 3 Minutes of Arc

Brightness Unit 1,700° K

BOULDER

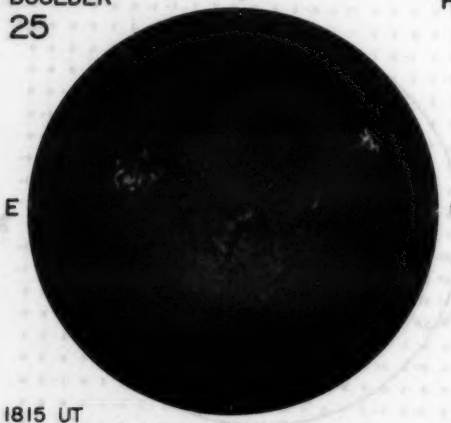
25

Np

Hα

E

W



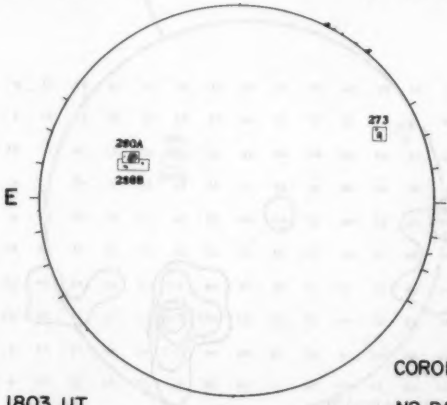
1815 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA

NO DATA

1803 UT

Sp

NRL

OSO-7

Np

WHITE-LIGHT

CORONA

E

W

0711 UT

Sp

NASA GSFC

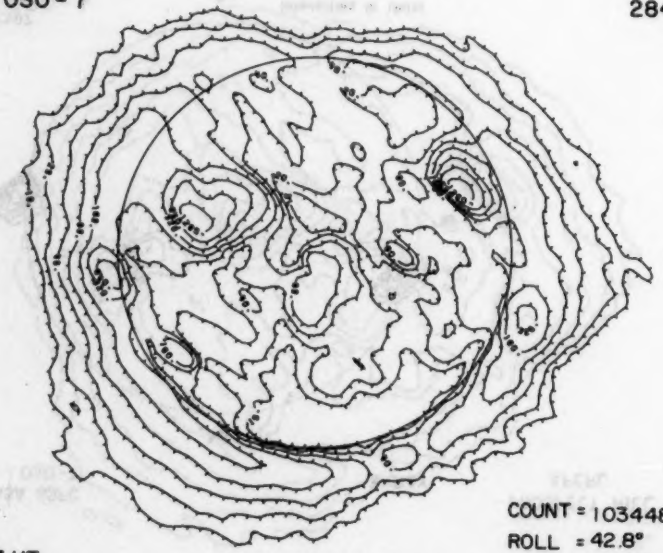
OSO-7

Np

FE XV

284A

E



W

COUNT = 103448

ROLL = 42.8°

P-TH = -2.42

1527 UT

Sp

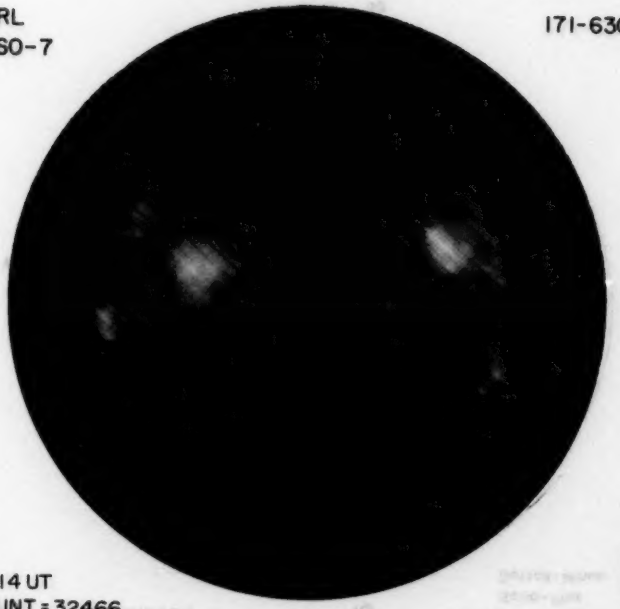
NRL

OSO-7

Np

171-630A

E



W

1814 UT

COUNT = 32466

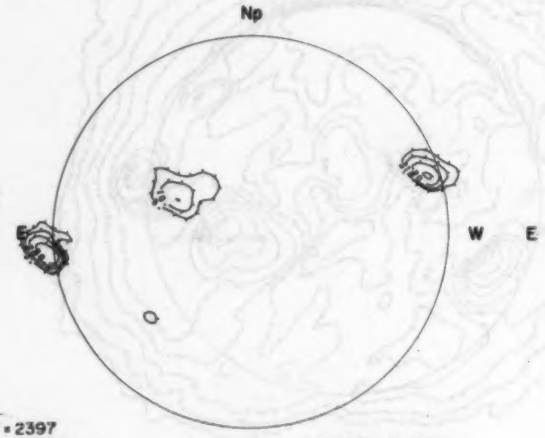
Sp

79 Mar 73

MARCH 26, 1973 (P = -25.83, B_o = -6.82, L_o = 174.91)

NASA GSFC
OSO-7

X-RAY



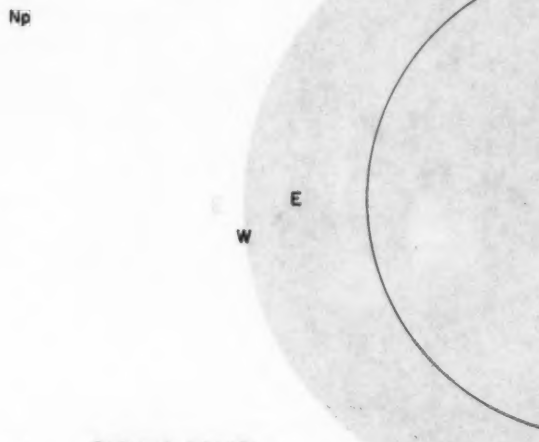
COUNT = 2397
ROLL = 40.8°
P-TH = -2.54

1532 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

8.6 mm

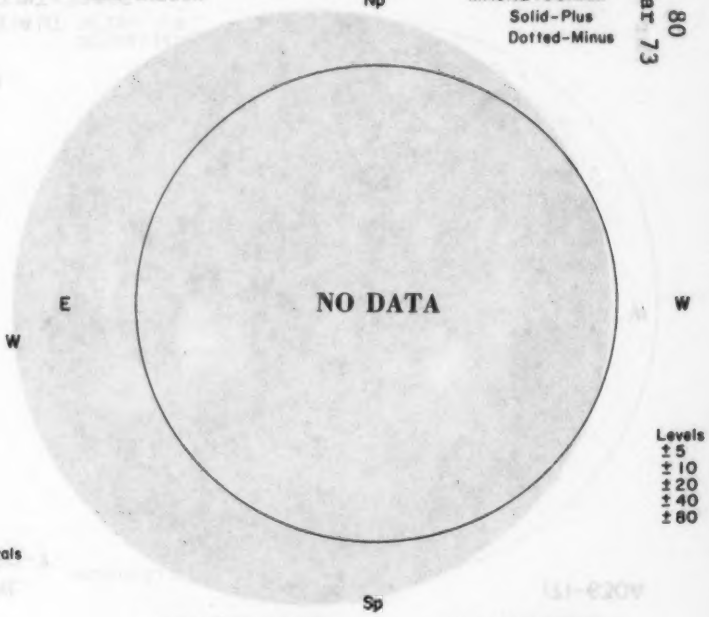


Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

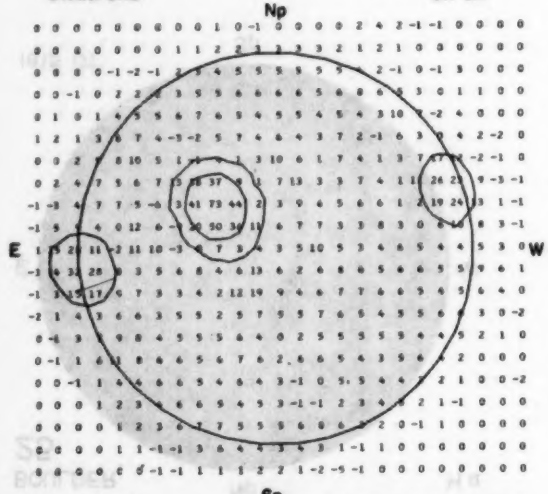
80
Mar 73



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

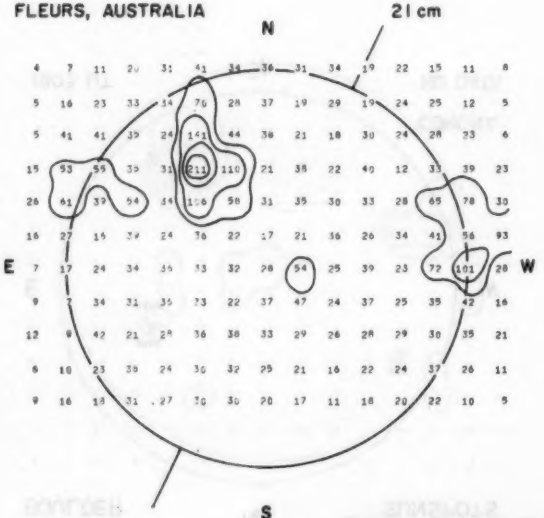


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

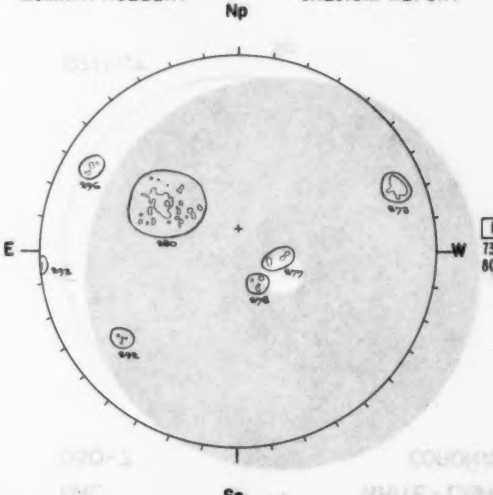


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

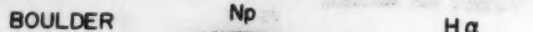
CALCIUM REPORT



FAIR | D
73 - 2000 - 3.5
80 - 2700 - 3.5

1315 UT

BOULDER



Hα

BOULDER

SUNSPOTS

NRL

WHITE LIGHT

20-21 UT

Brightness Unit 5,000° K

02-03 UT

Resolution 3 Minutes of Arc

Brightness Unit 1,700° K

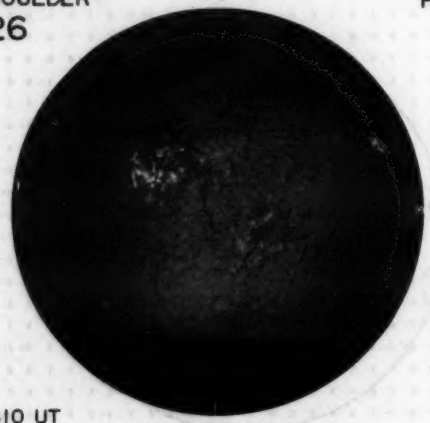
1315 UT

BOULDER

26

Np

Hα



E

W

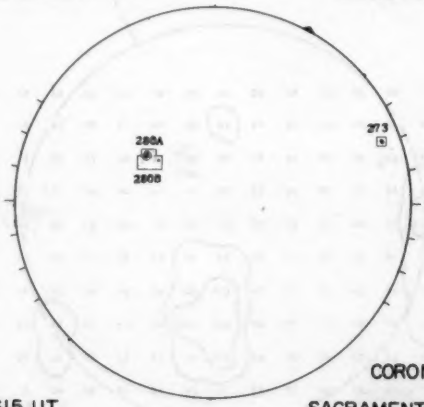
Sp

1610 UT

BOULDER

Np

SUNSPOTS



E

W

Sp

1615 UT

CORONA

SACRAMENTO PEAK

NRL

OSO-7

Np

WHITE-LIGHT

CORONA

E

W

Sp

0441 UT

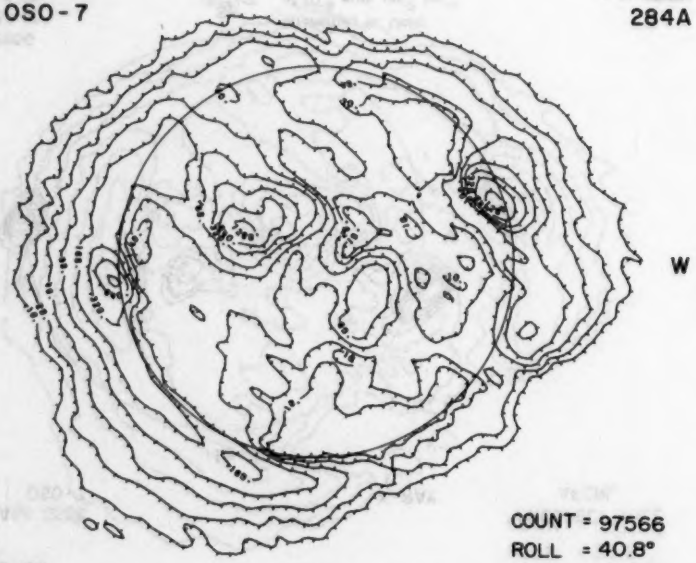
NASA GSFC

OSO-7

Np

FE XV

284A



E

W

Sp

1532 UT

COUNT = 97566

ROLL = 40.8°

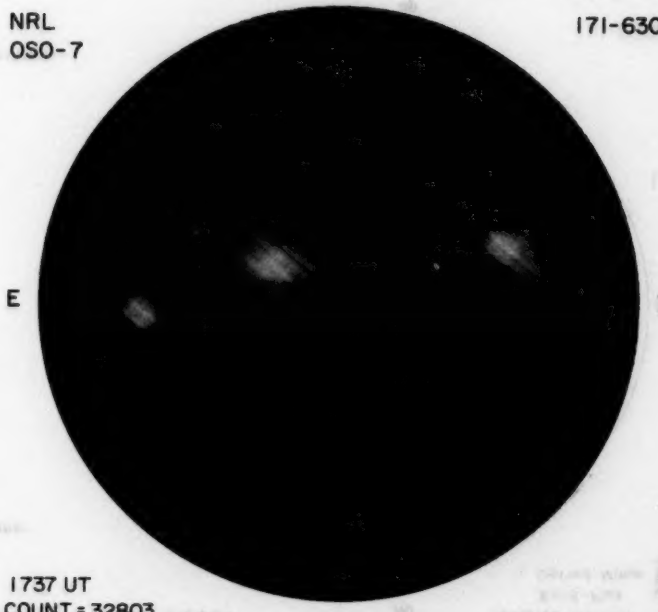
P-TH = -2.54

NRL

OSO-7

Np

171-630A



E

W

Sp

1737 UT

COUNT = 32803

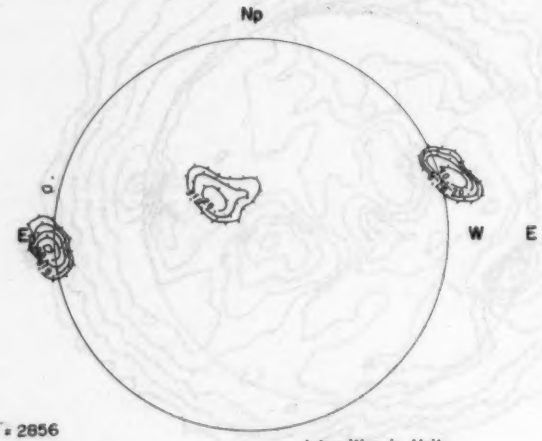
81

Mar 73

MARCH 27, 1973 (P = -25.91, B_o = -6.78, L_o = 161.72)

82 Mar 73

NASA GSFC OSO-7 — X-RAY



COUNT = 2856
ROLL = 38.6°
P-TH = -2.65

1315 UT

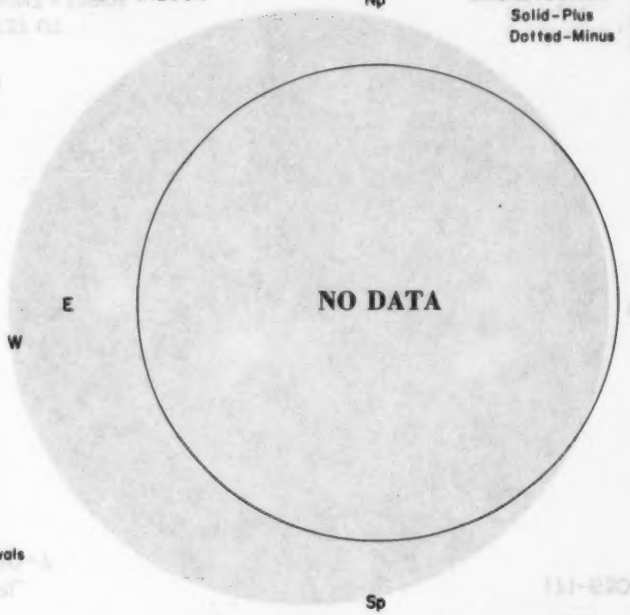
Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL AFCRL — 8.6 mm

Contours in Intervals of 200° K

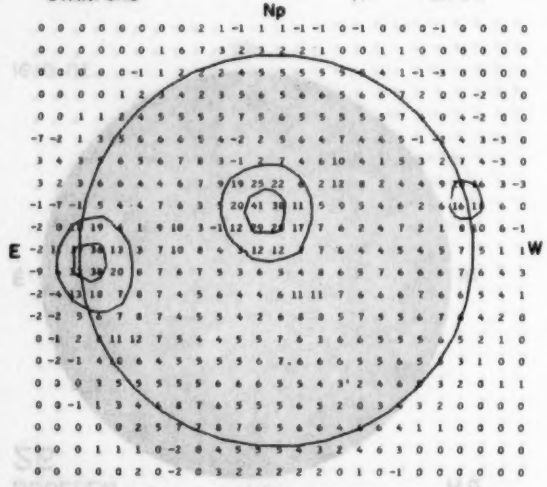
MT. WILSON — MAGNETOGRAM

Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

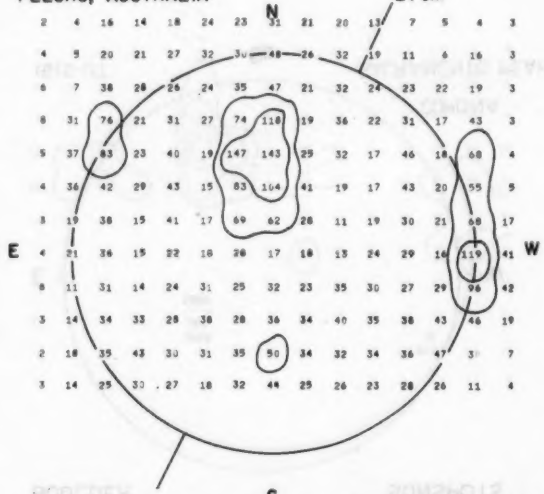
STANFORD — 9.1 cm



20-21 UT

Brightness Unit 5,000° K

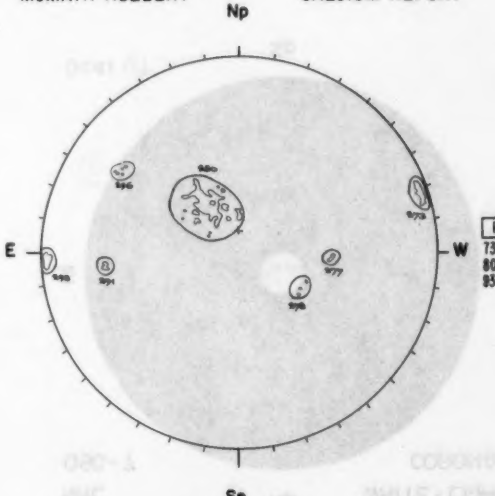
FLEURS, AUSTRALIA — 21 cm



02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT — CALCIUM REPORT



POOR	M
73 - 1800	- 3.0
80 - 3000	- 3.0
83 - 1500	- 3.5

1225 UT

Sp
20-21 UT
Brightness Unit 5,000° K

02-03 UT
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
1225 UT

RAMEY AFB
27

Np

Hα

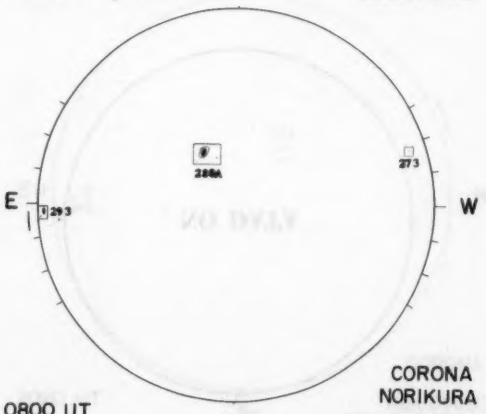
1144 UT

Sp

CANARY ISLAND

Np

SUNSPOTS



0800 UT

Sp

CORONA
NORIKURA
NO DATA SW LIMB

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

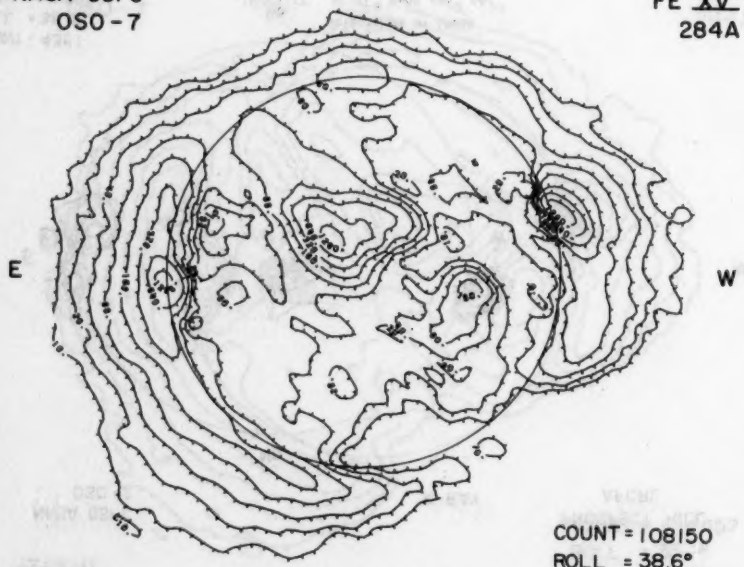
0643 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



COUNT = 108150
ROLL = 38.6°
P-TH = -2.65

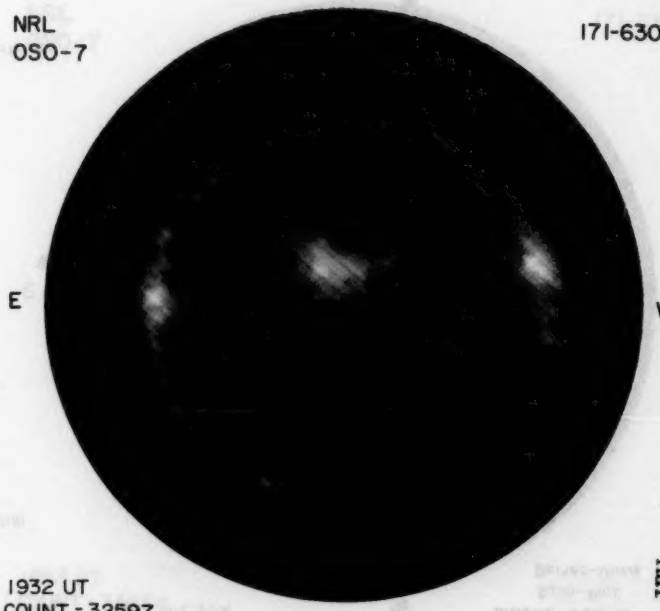
1332 UT

Sp

Np

NRL
OSO-7

171-630A



1932 UT
COUNT = 32597

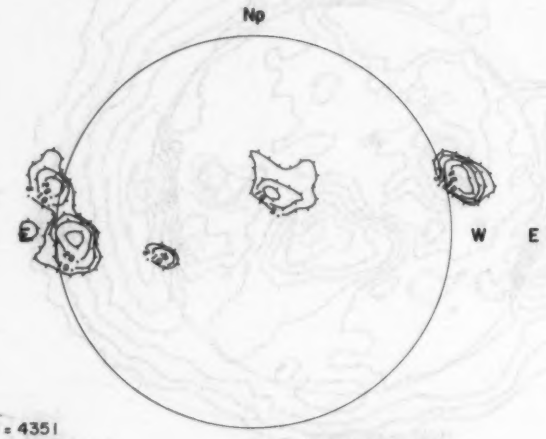
Sp

83
Mar 73

MARCH 28, 1973 (P = -25.98, B_o = -6.73, L_o = 148.53)

84 Mar 73

NASA GSFC
OSO-7
X-RAY



COUNT = 4351
ROLL = 35.9°
P-TH = -2.78

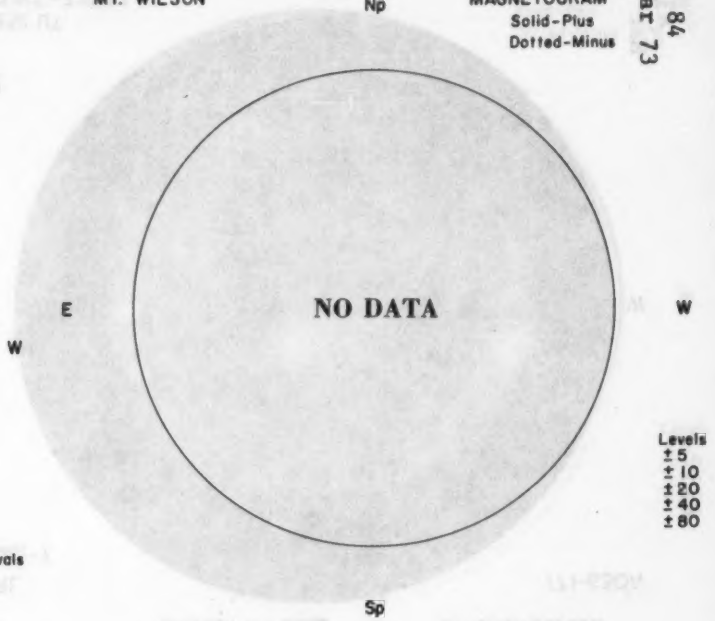
1649 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL
8.6 mm

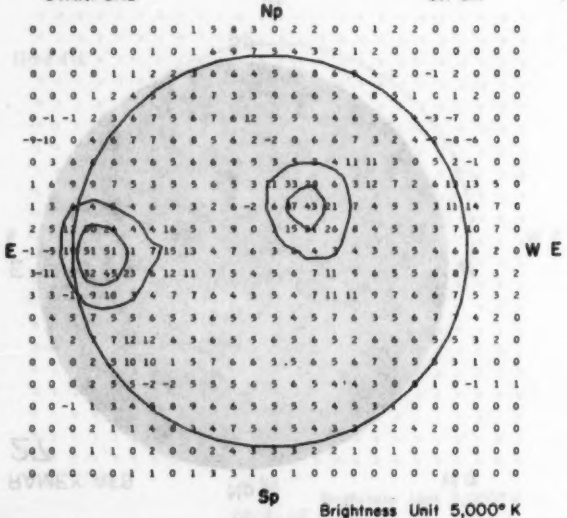
Contours in Intervals of 200° K

MT. WILSON
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

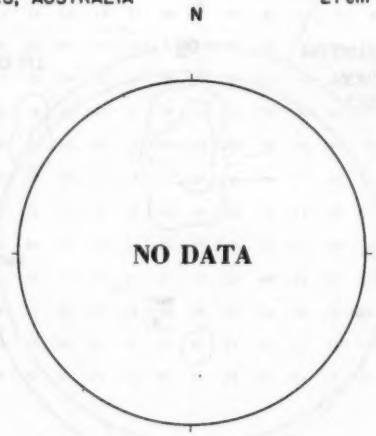
STANFORD
9.1 cm



20-21 UT

Brightness Unit 5,000° K

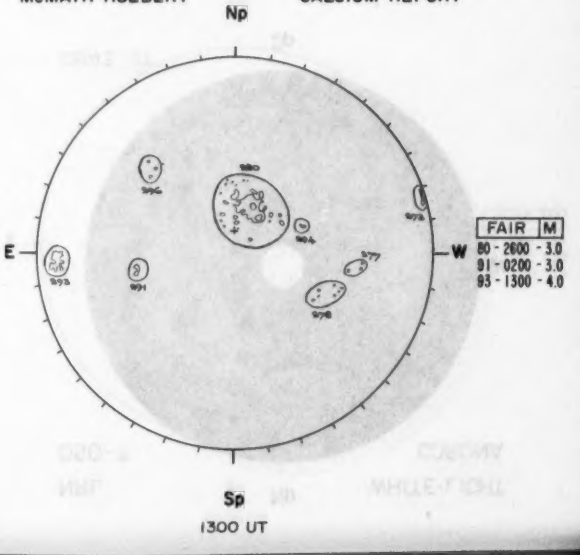
FLEURS, AUSTRALIA
21 cm



02-03 UT

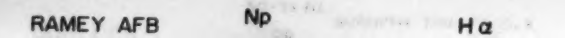
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT
CALCIUM REPORT



1300 UT

RAMEY AFB
Hα



SACRAMENTO PEAK

SUNSPOTS

NRL

WHITE-LIGHT

20-21 UT Brightness Unit 5,000° K

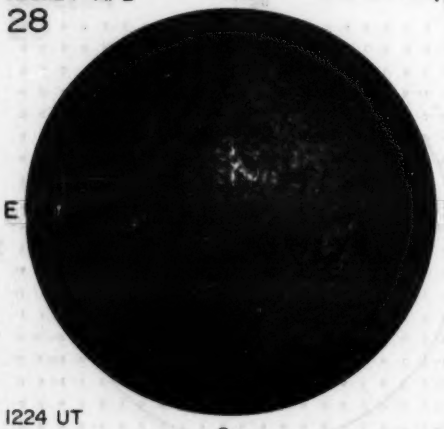
02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K

1300 UT

RAMEY AFB
28

Np

Hα



1224 UT

SACRAMENTO PEAK

Np

SUNSPOTS

2020 UT

CORONA

KISLOVODSK

NRL
OSO-7

Np

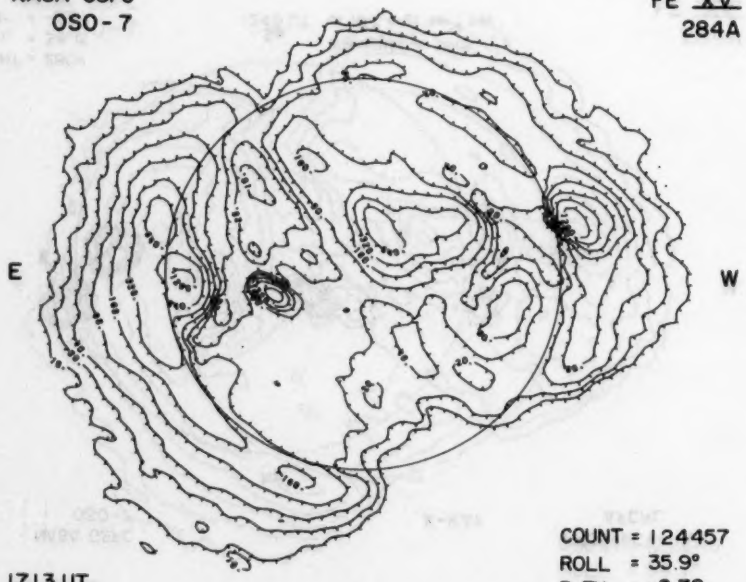
WHITE-LIGHT
CORONA

0854 UT

NASA GSFC
OSO-7

Np

FE XV
284A



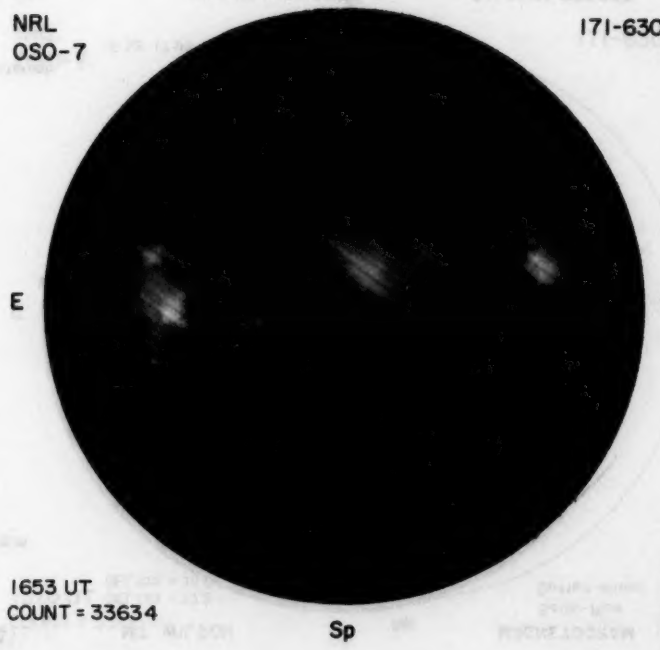
1713 UT

COUNT = 124457
ROLL = 35.9°
P-TH = -2.78

NRL
OSO-7

Np

171-630A



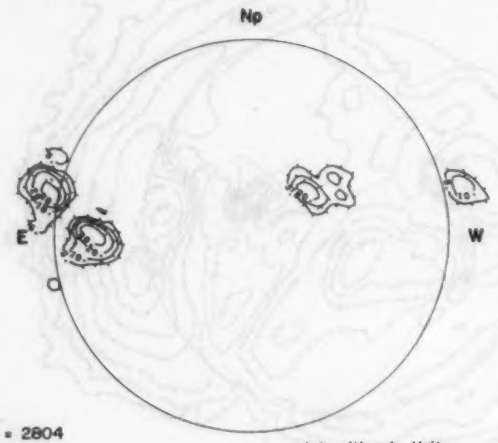
1653 UT
COUNT = 33634

85
Mar 73

MARCH 29, 1973 (P = -26.05, B_o = -6.68, L_o = 135.34)

NASA GSFC
OSO-7

X-RAY



COUNT = 2804
ROLL = 34.1°
P-TH = -2.87

1249 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

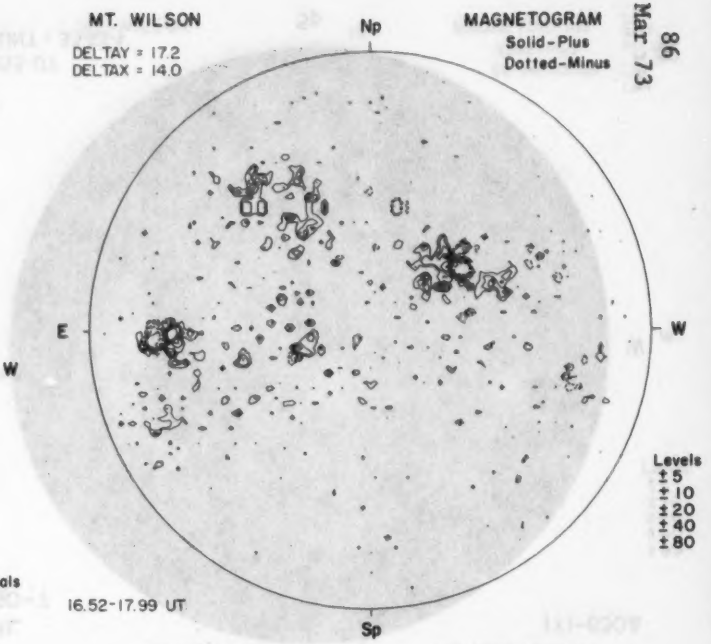
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.2
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

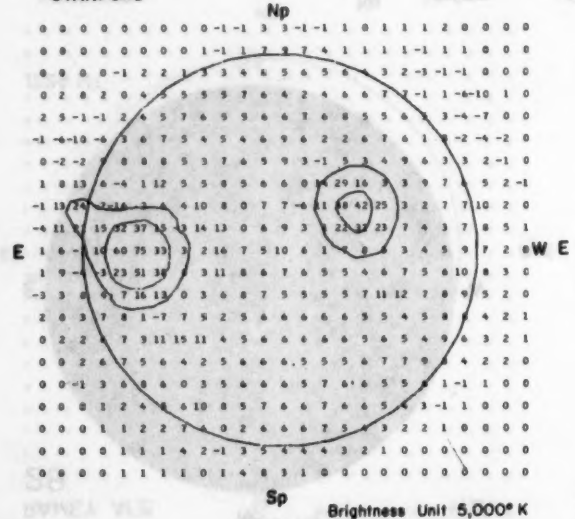


Levels
±5
±10
±20
±40
±80

16.52-17.99 UT

STANFORD

9.1 cm

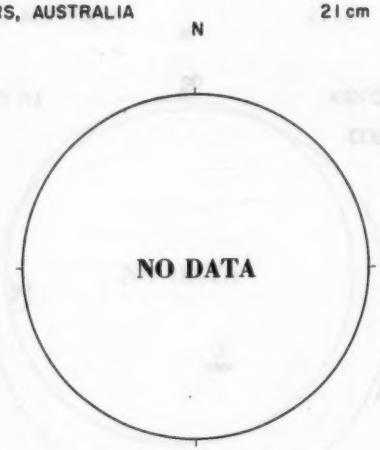


20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

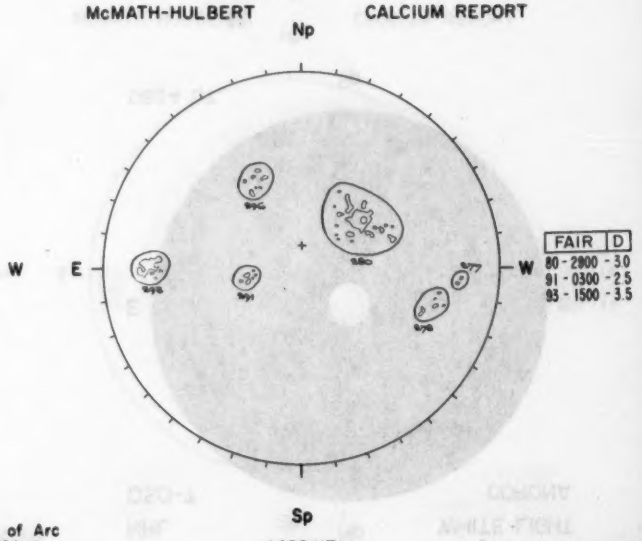


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1400 UT

BOULDER

Hα

CANARY ISLAND

Brightness Unit 5,000° K

20-21 UT

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1400 UT

BOULDER
29

Np

Hα

E

NO DATA

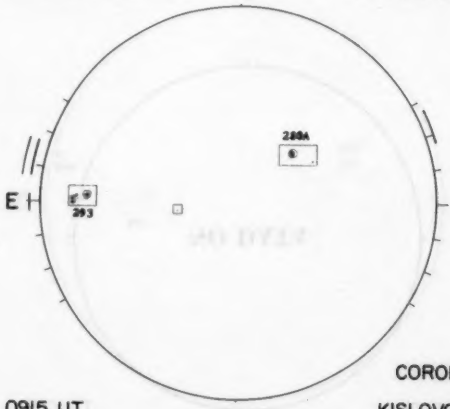
W

Sp

CANARY ISLAND

Np

SUNSPOTS



0915 UT

CORONA

KISLOVODSK

NRL
OSO-7

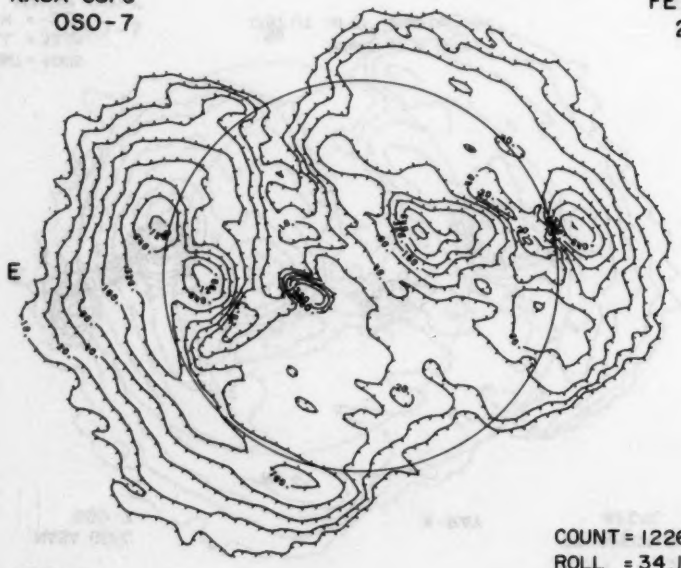
Np

WHITE-LIGHT
CORONA

0929 UT

NASA GSFC
OSO-7

Np



1249 UT

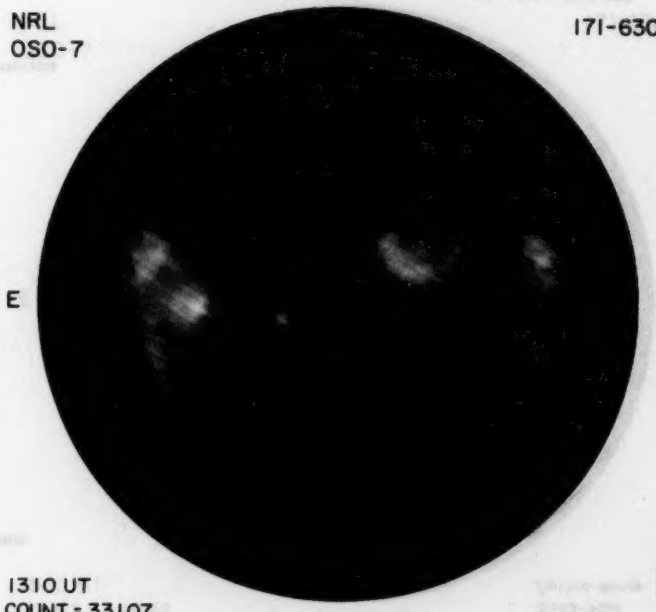
FE XV
284A

COUNT = 122645
ROLL = 34.1°
P-TH = -2.87

NRL
OSO-7

Np

171-630A



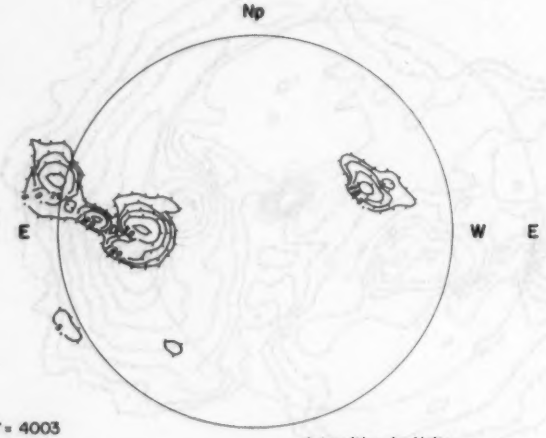
1310 UT
COUNT = 33107

87
Mar 73

MARCH 30, 1973 (P=-26.11, B_o=-6.63, L_o=122.15)

NASA GSFC
OSO-7

X-RAY



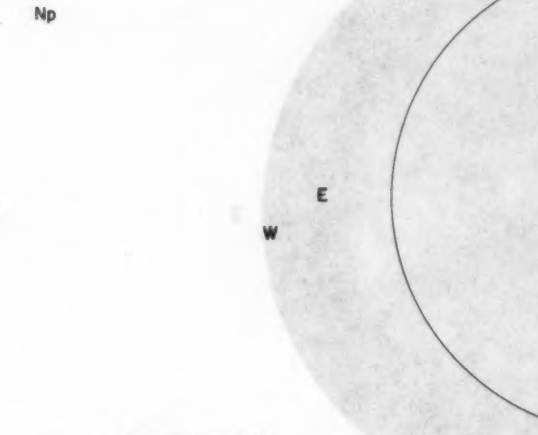
COUNT = 4003
ROLL = 33.0°
P-TH = -3.01

1757 UT

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

PROSPECT HILL
AFCRL

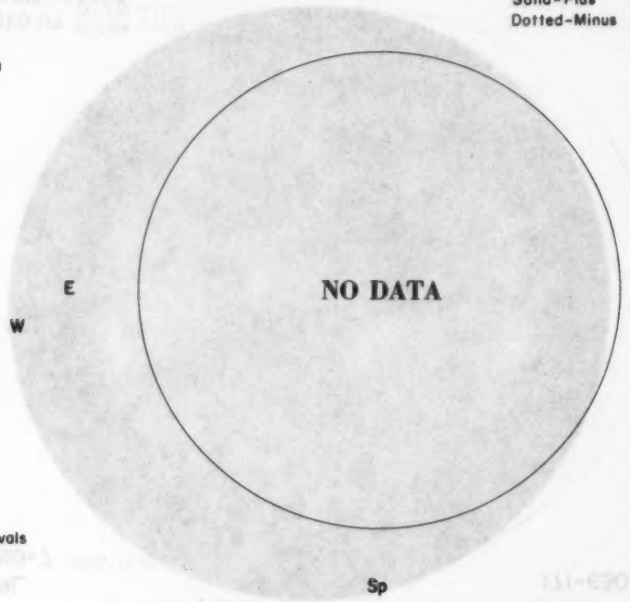
8.6 mm



Contours in Intervals of 200° K

MT. WILSON

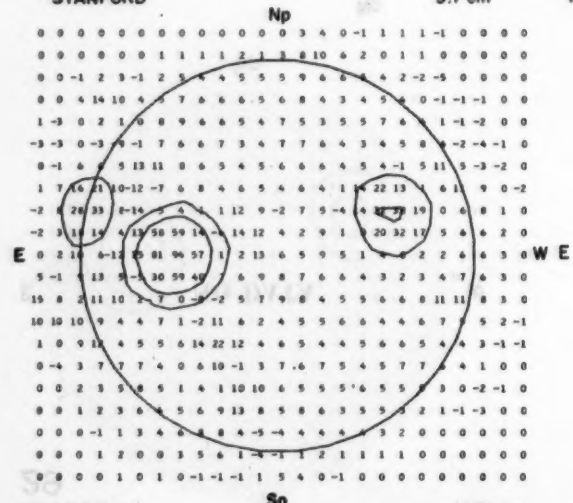
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm



20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

BOULDER

Hα

SACRAMENTO PEAK

SUNSPOTS

NRL

20-21 UT

02-03 UT Brightness Unit 1,700° K

BOULDER
30

Np

Hα

E

NO DATA

W

Sp

SACRAMENTO PEAK

Np

SUNSPOTS

E

W

1630 UT

Sp

CORONA

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0830 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A

E

W

1749 UT

Sp

COUNT = 128483
ROLL = 33.0°
P-TH = -3.01

Np

NRL
OSO-7

171-630A

E

W

1505 UT
COUNT = 34694

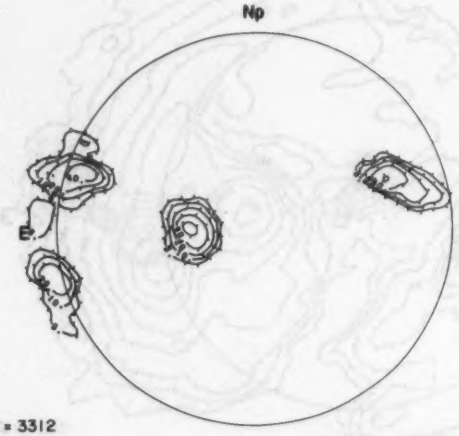
Sp

89
Mar 73

MARCH 31, 1973 (P = -26.16, B_o = -6.58, L_o = 108.96)

NASA GSFC
OSO-7

X-RAY



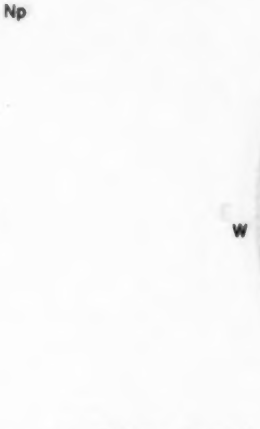
COUNT = 3312
ROLL = 32.0°
P-TH = -3.14

Intensities in Units of 10^{-6} ergs cm^{-2} sec^{-1}

2127 UT

PROSPECT HILL
AFCRL

8.6 mm



Contours in Intervals of 200° K

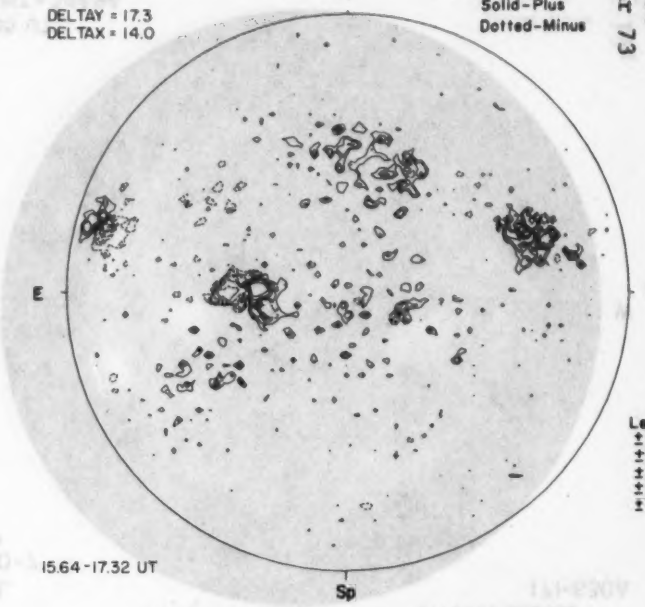
15.64-17.32 UT

MT. WILSON

DELTAY = 17.3
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

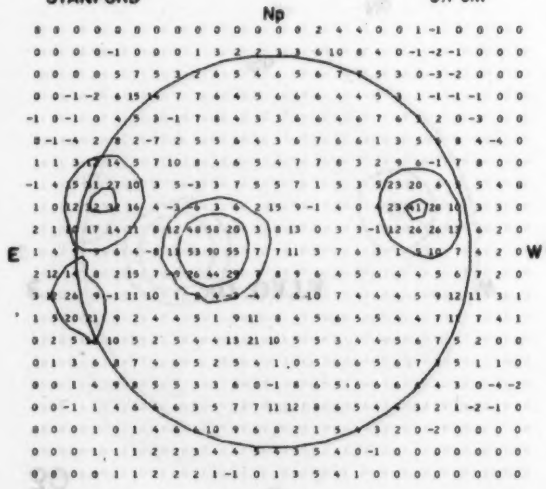
Mar 73 90



Levels
±5
±10
±20
±40
±80

STANFORD

9.1 cm

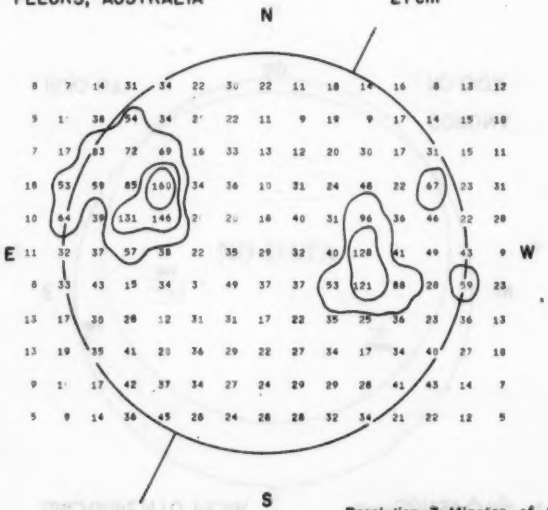


Brightness Unit 5,000° K

20-21 UT

FLEURS, AUSTRALIA

21 cm

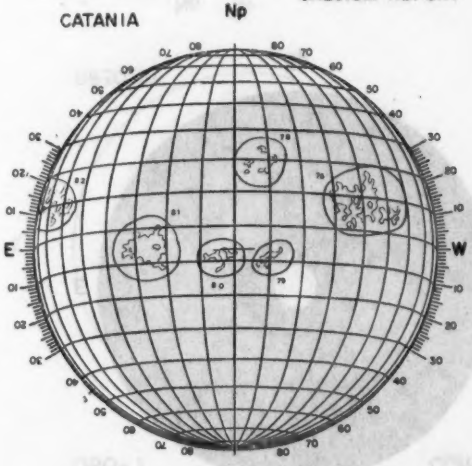


Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

CALCIUM REPORT

CATANIA



GOOD	GD
76 - 5869	---
80 - 0711	---
81 - 3930	---
82 - 6179	---

0742 UT

BOULDER

Np

H α

BOULDER

Np

SUNSPOTS

Np

20-21 UT

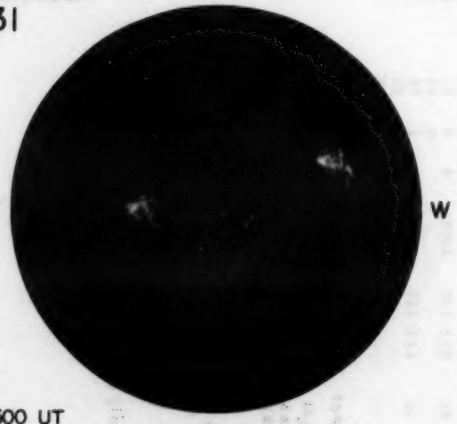
02-03 UT Brightness Unit 1,700° K

0742 UT

BOULDER
31

Np

Hα



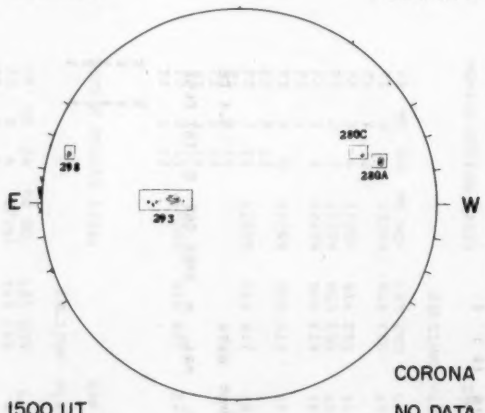
1500 UT

Sp

BOULDER

Np

SUNSPOTS



CORONA

NO DATA

1500 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

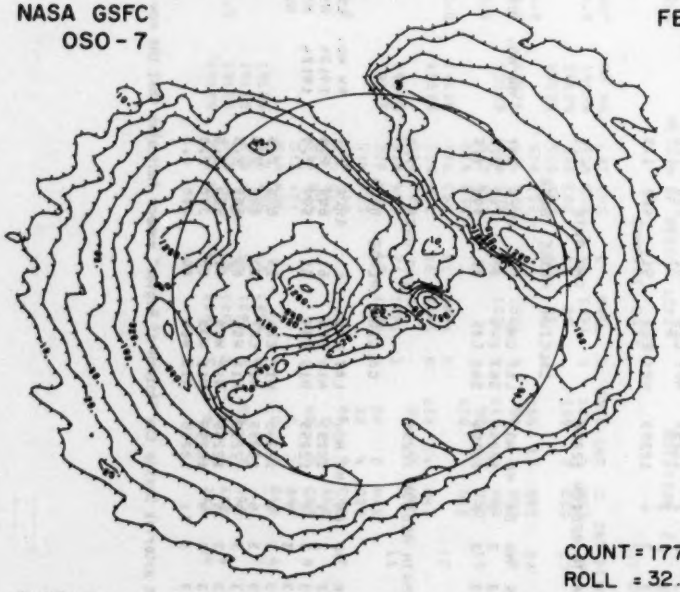
0732 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



COUNT = 177647
ROLL = 32.0°
P-TH = -3.14

2143 UT

Sp

NRL
OSO-7

Np

171-630A

1542 UT
COUNT = 35754

Sp

91
Mar 73

REGIONS OF SOLAR ACTIVITY

MARCH 1973

MCMATH REGION 12246 CMP DATE 1.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	2	22	12246	N07 E82	143	900	2.5
73	2	23	12246	N09 E72	142	1600	3.0
73	2	24	12246	N06 E61	139	2500	3.0
73	2	25					
73	2	26	12246	N08 E38	136	3700	4.0
73	2	27	12246	N08 E24	138	3700	3.5
73	2	28	12246	N07 E11	137	3800	3.5
73	3	1	12246	N07 W02	138	3700	3.5
73	3	2	12246	N09 W16	136	3700	3.5
73	3	3					
73	3	4	12246	N10 W40	134	3500	3.5
73	3	5					
73	3	6	12246	N09 W67	135	3400	3.5
73	3						
73	3	7	12246	N08 W75	130	2000	2.5
73	3	8	12246	N08 W88	131	400	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19120	N08 E85	141	AP		150	1	HHX	13	6
	N09 E78				250	1	HHX	26	11
	N07 E73				670	12	EKI	35	14
19120	N06 E50	138	(BP)	5	320	22	ESI	38	15
19120	N07 E35	139	(BP)	5	480	14	EKI	36	15
	N04 E23				450	24	EKI	35	14
	N07 E14				350	31	EKI	36	15
19120	N07 W06	140	(BP)	5	560	40	FKI	39	15
19120	N07 W18	139	(BP)	5	320	17	CKI	32	13
19120	N08 W35	140	(BP)	5	270	11	CHO	35	13
								28	11
19120	N08 W60	141	AP		230	5	HHX	28	8
	N07 W75				170	2	HHX	13	6
	N07 W60				10	3	CRO		
19127	N07 W71	126	(AP)	2				9	3
	N06 W80				30	1	AXX	3	1

MCMATH REGION 12252 CMP DATE 3.1 RETURN OF REGION 12207* ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	2	25					
73	2	26	12252	N18 E60	114	300	2.0
73	2	27	12252	N20 E48	114	500	2.0
73	2	28	12252	N20 E34	114	500	2.0
73	3	1	12252	N20 E22	114	700	2.0
73	3	2	12252	N20 E06	114	600	1.5
73	3	4	12252	N20 W18	112	700	1.5
73	3	6	12252	N20 W43	111	600	1.5
73	3	7	12252	N20 W56	110	400	1.5
73	3	8	12252	N20 W72	115	400	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19122	N16 E72	116	(A)	2					

MCMATH REGION 12253 CMP DATE 4.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	2	26	12253	N03 E85	89	300	2.0
73	2	27	12253	N03 E72	90	500	2.0
73	2	28	12253	N03 E58	90	400	2.0
73	3	1	12253	N02 E44	92	300	1.5
73	3	2	12253	N02 E29	91	200	1.0
73	3	3					
73	3	4	12253	N01 E03	91	400	1.5

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
								5	2
								5	2
								3	1
								4	2
								3	1

MCMATH REGION 12254 CMP DATE 5.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	3	1	12254	S03 E49	87	300	2.0
73	3	2	12254	S03 E35	85	300	1.5

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12255 CMP DATE 7.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	3	1	12255	N18 E75	61	600	2.5
73	3	2	12255	N16 E59	61	500	2.0
73	3	3					
73	3	4	12255	N17 E34	60	600	2.5
73	3	6	12255	N17 E07	61	600	2.5
73	3	7	12255	N17 W06	60	600	2.5
73	3	8	12255	N18 W18	61	500	2.0
73	3	9	12255	N16 W33	63	300	2.0
73	3	11	12255	N16 W65	66	200	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19124	N18 E71	63	A					3	1
19124	N17 E60	61	(A)	2	0	1	AXX	3	1
	N15 E49				0	1	AXX	5	2

*An asterisk beside the "Return of Region" number indicates that the new region is only part of the area of the old region.

REGIONS OF SOLAR ACTIVITY

MARCH 1973

HCMATH REGION 12257 CMP DATE 7.4 RETURN OF REGION 12215 ROTATION 4

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
73	3	4	12257	S20 E35	59	300	1.0										
73	3	6	12257	S19 E09	59	300	1.0									3	1
73	3	7	12257	S19 W04	58	400	1.5										
73	3	8	12257	S20 W15	58	300	1.5										
73	3	9	12257	S20 W28	58	200	1.5										
73	3	11	12257	S21 W58	59	200	1.0										

HCMATH REGION 12258 CMP DATE 8.9

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
73	3	4	12258	N12 E58	36	400	2.0										
73	3	6	12258	N13 E30	38	400	2.5										
73	3	7	12258	N13 E17	37	500	2.5										
73	3	8	12258	N13 E04	39	400	2.5										
73	3	9	12258	N13 W09	39	300	2.0										
73	3	11	12258	N13 W39	40	300	1.5										

HCMATH REGION 12259 CMP DATE 10.6 RETURN OF REGION 12217* ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
73	3	4	12259	N15 E75	19	1200	1.0									5	2
73	3	5														4	2
73	3	6	12259	N14 E50	18	1400	2.0									5	2
73	3	7	12259	N13 E36	18	2000	3.5	19128	N13 E34	21	(BP)	3	20	6	DRI	6	2
73	3	8	12259	N14 E25	18	2200	2.5		N16 E28				50	5	CRO	7	3
73	3								N07 E20				290	17	EKO		
73	3	9	12259	N13 E13	17	2000	2.5	19128	N13 E05	22	(BP)	4	60	6	CAO	8	3
73	3	10						19128	N13 W08	24	(BP)	3	50	4	CAO	9	3
73	3	11	12259	N13 W17	18	2000	3.0		N11 W19				80	22	DAI	16	6
73	3	12							N12 W30				120	48	EAI	11	4
73	3	13							N12 W49				90	25	EAI	12	4
73	3	14						19128	N12 W66	28	(BP)	4	80	7	CRO	16	6
73	3	15	12259	N14 W71	24	1800	2.5	19128	N12 W80	28	(B)	3	80	5	DAO	11	4
73	3	17														4	1

HCMATH REGION 12261 CMP DATE 10.6 RETURN OF REGION 12229 ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
73	3	4	12261	S18 E85	9	800	2.5	19125	S18 E78	16	(AP)	4	120	1	HSX	9	4
73	3	5						19125	S18 E62	19	AP		110	2	CSO	13	5
73	3							19126	S16 E63	18	AF						
73	3	6	12261	S17 E50	18	1500	4.0		S18 E52				160	18	DSI	22	9
73	3	7	12261	S17 E36	18	1500	3.5	19126	S16 E36	19	(BF)	2	50	13	DRI	19	7
73	3							19125	S18 E38	17	(AP)	4	110	1	HSX		
73	3	8	12261	S17 E25	18	1500	3.5		S13 E33				90	13	DSO	19	7
73	3								S16 E34				170	1	HAX		
73	3	9	12261	S16 E13	17	1700	3.0	19126	S16 E06	21	(BF)	2				17	6
73	3							19125	S18 E11	16	(AP)	5	130	1	HAX		
73	3								S13 E20				50	7	CSO		
73	3	10						19126	S16 W05	21	(BF)	3				11	4
73	3							19125	S18 W01	17	(AP)	4	60	2	HAX		
73	3								S14 E03				30	4	CSO		
73	3	11	12261	S16 W15	16	1200	3.0		S18 W11				80	5	CAO	7	3
73	3								S17 W12				0	4	AXX		
73	3	12							S18 W22				40	2	CAO	8	3
73	3								S17 W21				0	1	AXX		
73	3	13							S19 W36				70	3	CAO	6	2
73	3	14						19126	S16 W56	18	(AF)	1				7	3
73	3							19125	S18 W52	14	(AP)	2	60	2	CRO		
73	3	15	12261	S17 W64	17	1400	1.5	19125	S18 W67	15	(AP)	2	0	1	AXX	5	2
73	3	16						19125	S18 W77	14	(AP)	2	0	1	AXX	15	6

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MCMATH REGION 12263 CMP DATE 13.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	7	12263	S06	E79	336	100	1.5
73	3	8	12263	S07	E66	338	800	4.0
73	3	9	12263	S07	E52	339	1500	3.5
73	3	10						
73	3							
73	3	11	12263	S07	E22	340	1700	3.0
73	3							
73	3	12						
73	3	13						
73	3	14						
73	3							
73	3	15	12263	S07	W28	341	2500	3.0
73	3							
73	3	16						
73	3							
73	3	17						
73	3							
73	3	18	12263	S07	W70	341	2600	3.0
73	3							
73	3	19	12263	S07	W84	342	2500	3.5
73	3							

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
									8	3
	S06	E69				30	5	BXO	21	8
19129	S08	E48	340	(D)	5	300	14	DAI	34	13
19129	S08	E36	341	(BF)	5	470	8	DHI	32	12
19131	S13	E48	329	(BP)	3					
	S11	E09				50	5	CSO	31	12
	S07	E26				470	27	DKI		
	S07	E17				520	25	DAI	30	11
	S07	E01				400	40	EAI	28	10
19129	S07	W17	339	(B)	4	220	28	EAI	25	9
19131	S12	W08	330	(BP)	4	170	25	DAI		
19129	S07	E32	276	(BF)	4				22	8
19131	S13	W24	332	(BP)	5	200	15	DAO		
19129	S08	W42	339	(BF)	4	260	26	DAI	36	13
19131	S13	W34	331	(BP)	5	90	7	CSO		
19129	S07	W56	338	(BF)	3	240	30	DAI	37	13
19131	S14	W51	333	(AP)	5					
19129	S07	W68	339	(B)	3	200	17	DAI	28	10
19131	S14	W65	336	(AP)	4					
19129	S07	W87	344	(B)	3	60	10	CRI	21	8
19131	S14	W80	337	(AP)	3	90	3	CSO		

MCMATH REGION 12274 CMP DATE 14.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	19	12274	N09	W75	333	100	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12271 CMP DATE 14.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	18	12271	N15	W56	327	200	1.5
73	3	19	12271	N15	W70	328	500	2.0
73	3	20	12271	N15	W81	328	300	1.5

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12269 CMP DATE 14.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	15	12269	N07	W14	327	100	1.5

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12264 CMP DATE 14.7

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	8	12264	S12	E85	319	500	2.5
73	3	9	12264	S10	E72	319	1100	2.5
73	3	10						
73	3							
73	3	11	12264	S11	E41	321	1300	3.0
73	3	12						
73	3							
73	3	13						
73	3							
73	3	14						
73	3	15	12264	S11	W11	324	3000	3.5
73	3							
73	3	16						
73	3	17						
73	3							
73	3	18	12264	S12	W53	324	3000	3.0
73	3							
73	3	19	12264	S13	W66	324	3100	2.5
73	3	20	12264	S13	W77	324	2000	1.5
73	3	21	12264	S13	W89	321	500	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19130	S11	E63	325	(AP)	3	220	1	HSX		
19130	S11	E52	325	(AP)	5	130	2	CSO		
	S12	E58				20	3	AXX		
	S13	E35				80	13	DAI		
	S11	E30				140	8	DAI		
	S13	E23				80	17	DAI		
	S13	E08				160	15	DAO		
	S11	E17				110	15	DAI		
19130	S11	E01	321	(BP)	5	60	2	CRO	12	5
19130	S12	W14	322	(BP)	4	120	13	DAI		
	S10	W10				50	5	HAX		
19130	S12	W24	321	(BP)	4	60	2	HSX		
19130	S10	W41	323	(AP)	3	90	8	CAO		
	S10	W38				60	9	CAO		
19130	S10	W52	323	(AP)	2	100	4	HAX		
	S10	W50				40	3	HAX		
19130	S10	W66	323	(AP)	2					
									10	4
									6	2

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MCMATH REGION 12266 CMP DATE 15.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
73	3	11	12266	N08 E57	305	600	2.5		N08 E57				0	1	AXX	
73	3	12							N08 E48				10	2	BXO	
73	3	14						19132	N05 E14	308	(BP)	2				
73	3	15	12266	N07 E04	309	300	2.0	19132	N04 W01	309	(BP	2	0	1	AXX	
73	3	16						19132	N06 W12	309	(BF)	2	10	8	BRO	
73	3	18	12266	N07 W39	310	300	2.0									
73	3	19	12266	N07 W53	311	300	2.0									
73	3	20	12266	N07 W64	311	300	1.5									
73	3	21	12266	N07 W77	309	300	1.0									

MCMATH REGION 12265 CMP DATE 16.3 RETURN OF REGION 12227 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
73	3	9	12265	S15 E88	303	500	1.5									
73	3	11	12265	S16 E60	302	1000	2.5									
73	3	15	12265	S16 E10	303	1500	2.5									
73	3	16														5 2
73	3	17														4 1
73	3	18	12265	S16 W31	302	1300	2.5									
73	3	19	12265	S17 W44	302	1200	2.0									
73	3	20	12265	S17 W55	302	1000	2.0									
73	3	21	12265	S17 W68	300	700	1.0									
73	3	22	12265	S19 W82	301	400	1.0									3 1

MCMATH REGION 12270 CMP DATE 17.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
73	3	15	12270	S11 E21	292	200	1.5									
73	3	18	12270	S11 W20	291	200	1.0									
73	3	19	12270	S11 W32	290	100	1.0									
73	3	20	12270	S11 W44	291	200	1.0									
73	3	21	12270	S12 W56	288	300	1.0									

MCMATH REGION 12272 CMP DATE 17.5

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
73	3	18	12272	N29 W15	286	200	1.5									

MCMATH REGION 12267 CMP DATE 17.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
73	3	11	12267	N11 E89	273	200	1.0									
73	3	15	12267	N10 E32	281	300	1.5									
73	3	16														4 1
73	3	17														4 1
73	3	18	12267	N10 W11	282	200	1.0									

MCMATH REGION 12268 CMP DATE 18.1 RETURN OF REGION 12228 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	HW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
73	3	11	12268	S10 E80	282	700	1.0									
73	3	13														7 3
73	3	14														4 2
73	3	15	12268	S10 E34	279	400	2.0									
73	3	17							S10 E09				10	2	BXO	
73	3	18	12268	S10 W08	279	300	1.5									
73	3	19	12268	S10 W22	280	200	1.5									
73	3	20	12268	S09 W33	280	200	1.5									
73	3	21	12268	S09 W46	279	400	1.5									
73	3	22	12268	S09 W60	279	300	1.0									
73	3	23	12268	S09 W76	282	300	1.0									

Note: When there is only one side of the parenthesis around the magnetic type of sunspot it means that only half of the sunspot group was measured. The parenthesis is on whichever half was measured, either the leader or the follower.

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MCMATH REGION 12281 CMP DATE 19.1

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	3	21	12281	S05 W32	264	100	1.0
73	3	22	12281	S06 W45	264	100	1.5

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX

MCMATH REGION 12279 CMP DATE 20.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	3	21	12279	N07 W17	249	100	1.5

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX

MCMATH REGION 12285 CMP DATE 21.8

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	3	23	12285	S15 W24	238	100	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX

MCMATH REGION 12273 CMP DATE 22.4 RETURN OF REGION 12236 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	3	16					
73	3	17					
73	3	18	12273	N17 E47	224	600	3.5
73	3	19	12273	N17 E35	223	900	3.5
73	3	20	12273	N17 E24	223	1600	3.5
73	3	21	12273	N17 E12	220	1500	3.5
73	3	22	12273	N16 W03	222	1300	3.0
73	3	23	12273	N16 W16	222	1200	3.0
73	3	24	12273	N16 W30	223	1400	3.5
73	3	25					
73	3	26	12273	N16 W57	223	2000	3.5
73	3	27	12273	N16 W73	227	1800	3.0
73	3	28	12273	N16 W83	223	1000	2.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX
19133	N15 E73	224	(AP)	1				
19133	N14 E59	223	(AP)	3	10	2	BXO	
19133	N15 E47	224	(AP)	2	10	1	AXX	7 3
19133	N14 E34	223	(BP)	5	120	8	CAO	19 7
	N21 E17				160	12	CSO	17 6
19133	N14 E08	223	BP		180	17	DSO	21 7
19133	N14 W07	221	(BP)	5	150	19	DSO	18 6
19133	N15 W17	223	(BP)	5	150	14	DAO	
19133	N16 W31	223	(BP)	5	150	8	DAO	17 6
19133	N16 W45	224	(D)	5	90	8	CSI	16 6
19133	N15 W60	225	AP		50	1	HSX	14 5
	N15 W80				30	1	HSX	7 2
								4 1

MCMATH REGION 12282 CMP DATE 22.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	3	22	12282	S14 W01	220	100	1.5

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX

MCMATH REGION 12275 CMP DATE 23.7

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	3	19	12275	S10 E52	206	100	1.0
73	3	20	12275	S10 E41	206	200	1.0
73	3	21	12275	S10 E28	204	100	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX

MCMATH REGION 12286 CMP DATE 23.7

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	3	23	12286	N17 E01	205	100	1.5

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX

MCMATH REGION 12276 CMP DATE 23.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
73	3	19	12276	S20 E58	200	200	1.5
73	3	20	12276	S20 E45	202	100	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT FLUX

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MCMATH REGION 12283 CMP DATE 24.6

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	22	12283	N13	E29	190	100	2.0
73	3	23	12283	N13	E14	192	200	2.5
73	3	24	12283	N12	E01	192	200	2.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
19134	N11	E22	192	(AP)	2					
	N14	E17				0	1	AXX		
	N12	E03				10	2	BXO		

MCMATH REGION 12277 CMP DATE 25.6 RETURN OF REGION 12242* ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	19	12277	S08	E76	182	200	1.0
73	3	20	12277	S08	E67	180	300	1.0
73	3	21	12277	S08	E56	176	500	1.5
73	3	22	12277	S09	E42	177	200	1.5
73	3	23	12277	S09	E28	178	200	1.5
73	3	24	12277	S09	E14	179	200	1.5
73	3	26	12277	S09	W13	179	300	2.0
73	3	27	12277	S09	W27	181	300	1.5
73	3	28	12277	S09	W39	179	100	1.0
73	3	29	12277	S08	W54	181	200	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
									4	2

MCMATH REGION 12278 CMP DATE 26.0 RETURN OF REGION 12242* ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	19	12278	S18	E84	174	200	1.0
73	3	20	12278	S17	E73	174	300	1.5
73	3	21	12278	S17	E60	172	300	2.0
73	3	22	12278	S17	E48	171	200	1.5
73	3	23	12278	S17	E34	172	200	1.5
73	3	24	12278	S17	E20	173	200	1.5
73	3	26	12278	S17	W07	173	200	1.5
73	3	27	12278	S17	W19	173	200	1.0
73	3	28	12278	S17	W31	171	200	1.0
73	3	29	12278	S17	W45	172	400	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
									2	1
									3	1
									3	1

MCMATH REGION 12287 CMP DATE 26.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	24	12287	S30	E25	168	100	1.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12294 CMP DATE 27.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	28	12294	N02	W20	160	100	1.5

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX

MCMATH REGION 12280 CMP DATE 28.2 RETURN OF REGION 12246 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
73	3	21	12280	N07	E87	145	600	1.5
73	3	22	12280	N07	E78	141	1700	3.5
73	3							
73	3							
73	3	23	12280	N07	E64	142	2100	3.5
73	3							
73	3							
73	3	24	12280	N07	E48	145	2500	3.5
73	3							
73	3							
73	3	25						
73	3							
73	3	26	12280	N07	E22	144	2700	3.5
73	3							
73	3	27	12280	N07	E09	145	3000	3.0

SUNSPOT DATA 9.1 CM

NW NO.	LAT	CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
									6	2
19136	N04	E69	145	(AP)	2				14	5
19135	N06	E70	144	(AP)	5	210	1	HSX		
	N06	E79				40	2	CSO		
19136	N04	E56	148	(A)	3					
19135	N07	E60	146	(AP)	4	240	1	HSX		
	N05	E64				40	4	DSO		
19136	N05	E47	145	(BP)	3				21	7
19135	N06	E48	144	(AP)	5	250	1	HSX		
	N06	E50				30	5	CRO		
19136	N05	E34	145	(B)	3	40	5	DRO	18	6
19135	N07	E35	144	(AP)	6	280	1	HHX		
19136	N05	E20	145	B					37	13
19135	N07	E21	144	AP		240	7	DSO		
	N08	E10				260	4	DSO	18	6

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73	3	28	12280	N07 W04	144	2600	3.0		19135	N07 W08	145	AP					18	6
73	3								19136	N06 W06	143	AF		280	6	CSO		
73	3	29	12280	N08 W18	145	2900	3.0		19135	N07 W23	145	AP					20	7
73	3								19136	N06 W21	143	AF		280	4	CSO		
73	3	30							19135	N07 W34	145	(AP)	5					
73	3								19136	N06 W32	143	(AF)	3	200	6	DSO		
73	3	31							19135	N07 W47	144	(AP)	5	270	2	CSO	17	6
73	3								19141	N09 W38	135	(BY)	3	30	1	HSX		
73	4	1	12280	N08 W57	144	2800	3.0		19135	N07 W59	146	(AP)	5				18	5
73	4								19141	N09 W50	137	(BP)	4	280	5	CHO		
73	4									N08 W43				100	9	CSO		
73	4	2	12280	N08 W69	143	2400	2.5		19135	N08 W74	145	(AP)	4					
73	4								19141	N10 W66	137	(BP	3	340	1	HHX		
73	4									N08 W55				110	4	CSO		
73	4	3							19135	N08 W89	149	AP						
73	4								19141	N10 W80	140	(AP)	2	110	1	HSX		
73	4									N11 W80				90	1	HRX		

MCMATH REGION 12288 CMP DATE 29.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
73	3	24	12288	N11 E65	128	100	1.5											
73	3	25															4	1

MCMATH REGION 12292 CMP DATE 29.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
73	3	26	12292	S32 E43	123	200	1.5											

MCMATH REGION 12296 CMP DATE 30.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
73	3	26	12296	N19 E54	112	300	1.0											
73	3	27	12296	N19 E42	112	200	1.0											
73	3	28	12296	N19 E26	114	200	1.0											
73	3	29	12296	N19 E13	114	500	1.5											
73	4	1	12296	N19 W27	114	400	1.0											
73	4	2	12296	N20 W40	114	400	1.0											

MCMATH REGION 12291 CMP DATE 30.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
73	3	27	12291	S10 E40	114	200	2.0											
73	3	28	12291	S11 E29	111	200	3.0		19137	S14 E26	111	BF		20	3	CRO		
73	3	29	12291	S10 E15	112	300	2.5			S09 E20				10	1	AXX		
73	3	30							19140	S09 E10	101	A						
73	3	31							19140	S09 W03	100							
73	4	1	12291	S10 W26	113	200	1.5			S06 W33				20	5	CAO		
73	4	2	12291	S10 W38	112	300	1.5			S06 W47				20	6	CRO		
73	4	3								S12 W39				10	1	AXX		
73	4	4							19146	S05 W65	108	B		10	2	BXO		
73	4	5							19146	S05 W76	106	B						

MCMATH REGION 12297 CMP DATE 31.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								9.1 CM	
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	AREA	CNT	C	INT	FLUX
73	4	1	12297	S10 W12	99	200	1.0											

Note: Region 12246 is mostly new plage (at lower latitude), but also contains some remnants of old region 12207 of the previous rotation.
Region 12258 is a new plage that has developed near the location of region 12223 of the previous rotation.
Region 12263 has formed near the location of old 12224, but at a lower latitude.
No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on March 3, 5, 10, 12, 13, 14, 16, 17, 25, 30 and 31, 1973.
No sunspot observations were made at Mt. Wilson Observatory on March 6, 8, 11-13, 20 and 27.

DAILY CALCIUM PLAGE INDEX

MARCH 1973

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
73	3	1	20.5	73	3	11	19.0	73	3	21	6.8
73	3	2	16.5	73	3	12	*	73	3	22	5.8
73	3	3	*	73	3	13	*	73	3	23	7.6
73	3	4	13.2	73	3	14	*	73	3	24	10.8
73	3	5	*	73	3	15	24.3	73	3	25	*
73	3	6	12.7	73	3	16	*	73	3	26	13.4
73	3	7	14.0	73	3	17	*	73	3	27	11.9
73	3	8	13.0	73	3	18	13.2	73	3	28	10.9
73	3	9	14.7	73	3	19	8.8	73	3	29	13.2
73	3	10	*	73	3	20	7.5	73	3	30	*
								73	3	31	*

* NO OBSERVATIONS

Note:
The 31st day of October was inadvertently omitted from the table of Daily Calcium Plage Index in SGD Number 340 - Part I, page 98. There were no calcium plage observations at McMath-Hulbert Observatory on that day.

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 10 – EXPLORER 44

MARCH 1973

NAVAL RESEARCH LABORATORY 1 - 8A HOURLY AVERAGES (10^{-3} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0,15	0,15	0,12	0,11	0,16	0,18	0,14	0,17	1,14	0,21	0,13	2,86	0,49	0,17	0,14	0,12	0,13	0,13	0,13	0,12	0,13	0,16	0,13	0,20
2	0,20	0,17	0,16	0,23	0,25	0,18	0,14	0,18	0,12	0,12	0,13	0,12	0,12	0,12	0,12	0,12	0,14	0,17	3,38	0,24	0,16	0,18	0,15	0,15
3	0,15	0,14	0,20	0,14	0,12	0,23	0,13	0,12	0,13	0,13	0,12	0,13	0,10	0,13	0,11	0,13	0,31	0,91	0,33	0,21	0,27	0,29	0,16	0,16
4	0,13	0,12	0,14	0,14	0,12	0,15	0,12	0,11	0,10	0,09	0,11	0,11	0,10	0,10	0,35	0,14	0,10	0,11	0,10	0,11	0,11	0,09	0,11	0,11
5	1,11	0,16	0,12	0,10	0,09	0,09	0,09	0,09	0,10	0,10	0,12	0,12	0,10	0,13	0,22	0,24	0,18	0,12	0,15	0,19	0,18	0,21	2,01	0,58
6	0,25	0,20	0,29	0,23	0,87	0,28	0,17	0,22	0,67	2,53	0,92	0,28	0,30	0,28	0,61	0,41	0,34	0,17	0,24	0,24	1,33	0,35	0,16	0,13
7	0,12	0,12	0,12	0,12	0,12	0,11	0,12	0,74	0,31	0,14	0,14	0,13	0,15	0,11	0,13	0,24	0,21	0,13	0,15	0,19	0,13	0,13	0,19	0,34
8	0,16	0,28	0,21	0,16	0,17	0,18	0,17	0,42	0,31	0,86	0,32	0,33	1,02	1,22	0,95	1,77	0,71	0,98	0,39	0,31	0,37	0,31	0,28	0,38
9	0,23	0,37	0,32	0,34	4,32	0,85	0,39	0,36	0,22	0,21	0,18	0,20	0,25	0,31	0,29	0,44	0,64	0,61	0,29	0,20	0,22	0,18	0,20	0,24
10	0,20	0,19	0,17	0,17	0,15	0,18	0,18	0,18	0,22	0,22	0,28	0,51	0,35	0,48	0,46	0,33	0,40	0,39	0,29	0,25	0,31	0,47	0,30	0,26
11	0,22	0,21	0,29	0,23	0,21	0,29	0,35	0,31	0,23	0,25	0,25	1,02	1,00	0,28	0,32	0,23	0,27	0,21	0,22	0,29	0,22	0,29	0,22	0,24
12	0,27	0,28	0,37	0,29	1,05	0,60	0,30	0,28	0,24	0,33	0,44	6,05	0,86	0,47	0,28	0,28	0,27	0,23	0,20	0,22	0,21	0,40	0,61	0,36
13	0,30	0,25	0,33	0,23	0,25	0,95	0,30	0,25	0,25	1,94	1,62	1,21	0,87	0,64	0,53	0,75	1,23	0,48	0,42	0,51	0,35	0,29	1,89	0,23
14	0,21	2,22	0,34	0,31	0,25	0,49	0,46	4,26	2,31	3,02	0,26	0,25	0,82	5,39	1,01	1,82	1,18	2,19	0,81	2,30	0,41	0,55	0,74	4,06
15	1,57	0,74	0,58	0,38	0,62	1,31	0,96	0,31	0,31	0,21	0,20	0,25	0,24	0,18	0,19	0,24	1,49	0,55	0,37	0,38	0,46	2,09	3,38	2,34
16	1,29	0,99	0,95	0,68	0,67	0,36	0,29	0,25	0,26	0,25	0,25	0,33	0,24	0,26	0,30	0,26	0,30	0,31	0,44	1,66	0,85	0,59	0,75	0,52
17	1,11	0,90	0,90	0,39	0,34	0,32	0,64	0,76	0,41	0,41	0,39	0,77	1,57	0,75	0,48	0,44	0,48	0,26	0,27	0,29	0,31	0,65	1,05	0,63
18	0,70	1,05	1,71	1,04	0,68	0,36	0,74	1,93	0,61	0,26	0,99	0,40	0,24	0,22	0,27	0,28	0,42	0,45	0,40<	0,33<	0,48<	1,15<	0,37<	0,39<
19	0,34<	0,27	0,27	0,35	0,36	0,93	0,36	2,88	2,20	0,54	0,62	0,52	0,41	0,64	2,60	4,69	2,80	0,68	0,67	0,64	0,43	0,57	0,36	0,80
20	0,69	0,70	0,57	0,30	0,47	0,72	0,25	0,30	0,40	0,32	0,25	0,89	0,32	0,24	0,21	0,22	0,19	0,17	0,17	0,21	1,46	1,09	0,35	0,49
21	0,32	0,20	0,21	0,26	0,16	0,14	0,11	0,12	0,13	0,13	0,12	0,12	0,15	0,12	0,10	0,11	0,17	0,17	1,27	0,90	0,18	0,19	0,26	0,09
22	0,11	0,12	0,64	0,64	0,27	0,29	0,21	0,23	0,99	0,43	0,46	0,46	0,44	0,38	0,41	0,20	0,28	0,26	0,15	0,11	0,13	0,58	0,40	0,30
23	0,17	0,35<	0,20<	0,15	0,16	0,20	0,15	0,21	0,18	0,21	0,21	0,21	0,16	0,32	0,29	0,19	0,10	0,18	0,24	0,18	0,15	0,16	0,13	0,29
24	0,17	0,32	0,58	4,47	2,67	1,60	2,67	0,63	0,47	0,37	0,55	2,36	1,03	0,51	0,30	0,25	0,21	0,20	0,18	0,14	0,12	0,10	0,22	0,09
25	3,02	0,25	0,15<	0,09	1,60	1,69	0,12	0,09	0,06	0,43	0,16	0,16	0,22	0,10	0,09	0,28	0,81	0,12	0,09	0,19	1,20	0,34	0,09	0,90
26	1,16	0,21	0,15	0,16	0,12	0,12	0,12	0,19	0,16	0,36	0,13	0,14	0,37	0,14	0,13	0,10	0,13	0,14	0,12	0,47	1,17	0,56	0,60	0,12
27	0,11	0,11	0,12	0,12	0,09	0,11	0,13	0,11	0,17	0,12	0,12	0,20	0,16	0,13	0,28	0,16	0,19	0,46	0,12	0,19	0,20	0,20	0,20	1,20
28	0,37	0,90	0,31	0,45	0,15	0,16	0,15	0,18	0,15	0,17	1,14	0,76	0,22	0,16	0,35	0,14	0,21<	0,24<	0,86<	0,53<	0,31<	0,18	0,16	0,18
29	0,15	0,15	0,23	0,21	0,19	0,48	0,35	0,23	0,23	0,19	0,14	0,23	0,13	0,20	0,16	0,17	0,15	0,15	0,14	0,19	0,15	0,25	0,80	2,77
30	1,07	0,95	0,53	0,37	0,53	0,39	0,68	1,94	0,93	0,72	0,25	0,28	0,42	0,49	0,22	0,34	0,23	0,21	0,23	0,26	0,28	0,18	0,25	0,28
31	0,24	0,26	0,79	0,48	0,42	0,57	0,50	0,33	0,55	0,35	0,96	0,25	0,21	0,29	0,33	0,30	0,33	0,35	0,56	0,72	0,44	0,38	0,84	0,45

VALUES MARKED WITH (<) WERE CALCULATED FROM DATA PROVIDED BY SOLRAD 9

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 10 – EXPLORER 44

MARCH 1973

NAVAL RESEARCH LABORATORY 8 - 20A HOURLY AVERAGES (10^{-2} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0,65	0,65	0,60	0,58	0,65	0,71	0,64	0,71	2,25	1,31	0,76	1,83	1,36	0,77	0,71	0,63	0,63	0,67	0,66	0,67	0,67	0,72	0,70	0,80
2	0,85	0,83	0,76	0,86	0,89	0,81	0,72	0,85	0,77	0,72	0,79	0,73	0,75	0,69	0,71	0,68	0,72	0,83	4,03	0,93	0,83	0,79	0,72	0,76
3	0,80	0,73	0,85	0,70	0,71	0,78	0,71	0,71	0,76	0,70	0,77	0,79	0,61	0,67	0,61	0,68	0,98	1,48	1,03	0,89	0,89	0,88	0,79	0,76
4	0,72	0,68	0,71	0,71	0,67	0,72	0,71	0,67	0,67	0,82	0,61	0,68	0,59	0,60	0,98	0,75	0,61	0,58	0,64	0,60	0,61	0,59	0,59	0,59
5	1,57	0,73	0,61	0,59	0,58	0,58	0,60	0,60	0,65	0,77	0,62	0,66	0,59	0,60	0,65	0,80	0,74	0,64	0,74	0,75	0,76	0,81	3,15	1,32
6	0,91	0,85	0,84	0,86	1,21	0,97	0,84	1,10	1,28	3,40	1,74	1,04	1,02	0,98	1,26	1,17	1,12	0,90	0,98	1,04	2,69	1,18	0,86	0,72
7	0,71	0,71	0,71	0,69	0,66	0,67	0,69	1,27	1,04	0,84	0,81	0,73	0,76	0,67	0,70	1,06	0,92	0,74	0,72	0,76	0,69	0,70	0,77	0,98
8	0,75	0,86	0,86	0,84	0,81	0,85	0,85	1,10	1,53	1,46	1,26	1,12	2,09	2,70	2,02	3,00	1,65	1,80	1,28	1,16	1,15	1,12	1,12	1,18
9	0,96	1,07	1,04	1,08	3,36	1,81	1,13	1,10	1,60	0,86	0,90	0,86	0,94	1,07	1,05	1,23	1,77	1,74	1,17	0,95	0,97	0,88	0,92	0,99
10	0,89	0,86	0,84	0,82	0,79	0,91	1,01	0,86	1,15	0,97	1,07	1,42	1,32	1,42	1,40	1,36	1,35	1,32	1,14	1,06	1,16	1,20	1,15	1,12
11	1,01	0,98	1,09	1,01	1,00	1,16	1,40	1,15	1,22	1,07	1,07	1,70	1,89	1,19	1,28	1,09	1,15	0,98	1,02	1,06	0,98	1,00	1,00	1,09
12	1,12	1,11	1,23	1,05	2,22	1,54	1,33	1,43	1,14	1,22	1,39	8,50	2,39	1,53	1,27	1,15	1,15	1,10	0,98	1,05	1,02	1,27	1,59	1,36
13	1,27	1,16	1,14	1,09	1,23	1,71	1,25	1,30	1,14	3,31	3,67	2,96	2,96	1,81	1,67	1,79	2,77	1,46	1,45	1,40	1,36	1,17	2,88	1,14
14	1,09	3,46	1,34	1,25	1,20	1,27	1,37	4,95	4,70	3,46	1,18	1,15	1,74	5,86	2,61	4,37	2,96	4,10	2,15	4,19	1,50	1,48	1,93	5,49
15	3,75	2,25	1,79	1,52	1,92	2,29	2,06	1,27	1,14	1,00	0,98	1,05	1,05	1,04	0,97	1,03	2,72	1,60	1,35	1,30	1,36	4,29	5,49	5,28
16	2,96	2,96	2,52	2,44	1,81	1,52	1,19	1,13	1,15	1,11	1,17	1,24	1,17	1,21	1,21	1,18	1,28	1,29	1,44	2,93	2,83	1,43	1,76	1,60
17	2,72	2,66	1,69	1,66	1,43	1,47	1,65	1,92	1,73	1,42	1,48	1,98	2,96	2,31	1,51	1,42	1,42	1,16	1,14	1,09	1,18	1,50	2,96	1,74
18	1,48	1,48	2,60	2,03	1,56	1,29	1,61	2,96	1,69	1,11	1,98	1,22	0,94	0,99	1,02	1,08	1,18	1,27						
19		1,07	1,04	1,27	1,21	1,92	1,21	4,35	4,90	1,60	1,59	1,56	1,62	1,57	5,21	8,21	6,59	2,45	1,99	1,76	1,53	1,68	1,39	1,70
20	1,77	2,72	1,92	1,29	1,37	1,54	1,20	1,09	1,16	1,17	1,09	1,71	1,23	1,01	0,98	0,97	0,88	0,86	0,85	0,88	2,88	2,18	1,31	1,41
21	1,24	0,99	0,86	0,95	0,85	0,78	0,62	0,66	0,65	0,67	0,74	0,64	0,74	0,61	0,58	0,59	0,71	0,69	1,70	1,58	0,72	0,58	0,73	0,48
22	0,60	0,60	1,22	1,21	0,99	0,92	0,74	0,77	1,16	1,02	1,06	0,98	1,06	0,95	0,99	0,78	0,92	0,89	0,69	0,65	0,61	1,09	1,05	0,88
23	0,76			0,75	0,68	0,86	0,71	0,74	0,67	0,71	0,81	0,74	0,60	0,75	0,83	0,69	0,50	0,64	0,71	0,62	0,61	0,64	0,61	0,69
24	0,64	0,85	1,09	9,29	4,76	2,63	2,65	1,27	1,08	1,11	1,04	1,59	1,58	1,14	0,82	0,72	0,69	0,66	0,61	0,57	0,50	0,46	0,74	0,46
25	2,05	1,59	1,47	0,47	0,96	1,93	0,57	0,46	0,41	1,05	0,60	0,63	0,72	0,52	0,44	0,59	1,10	0,52	0,45	0,49	1,39	0,78	0,46	0,94
26	1,44	0,67	0,69	0,58	0,60	0,52	0,51	0,83	0,62	0,82	0,57	0,63	0,77	0,56	0,57	0,47	0,51	0,52	0,49	0,86	1,96	1,24	1,07	0,60
27	0,62	0,55	0,62	0,59	0,52	0,55	0,60	0,63	0,64	0,67	0,67	0,66	0,64	0,62	0,71	0,71	0,73	0,95	0,60	0,61	0,74	0,77	0,76	1,95
28	1,15	1,64	0,98	1,18	0,75	0,72	0,72	0,87	0,97	0,80	1,66	1,45	0,83	0,72	0,89	0,69						0,84	0,83	0,77
29	0,76	0,73	0,91	0,91	0,88	1,00	1,09	1,05	1,05	0,87	0,76	0,81	0,72	0,80	0,73	0,79	0,75	0,78	0,74	0,83	0,76	0,98	1,41	4,56
30	2,14	1,88	1,36	1,26	1,35	1,28	1,51	3,10	2,20	1,59	1,13	1,07	1,13	1,24	0,99	1,10	0,97	0,92	0,95	1,09	1,12	0,89	1,00	1,01
31	1,00	1,01	1,39	1,17	1,17	1,37	1,28	1,15	1,41	1,33	2,03	1,09	1,02	1,08	1,18	1,16	1,22	1,22	1,29	1,60	1,37	1,39	1,96	1,29

SOLAR X-RAYS BY SATELLITE
SOLRAD 10 - EXPLORER 44

MARCH 1973

NAVAL RESEARCH LABORATORY

OUTSTANDING EVENTS

DAY	START TIME	0.5-3A FLUX XE-5	PEAK TIME	1-8A FLUX XE-4	PEAK TIME	8-20A FLUX XE-3	PEAK TIME	END TIME	COMMENTS
1	1119	130,00D	1130E	840,00	1125	190,00	1125	1138	OBSERVED BY SOLRAD 9
1	1142	27,00D	1142E	92,00	1145	53,00	1144	1151	OBSERVED BY SOLRAD 9
2	1813	14,40	1820	64,40	1827	59,20	1818	1839	
6	0920	0,00D	0920D	61,20	0923	59,20	0922	0929D	
8	1508E	19,20D	1508E	70,80D	1508E	59,20D	1508E	1514	
9	0430	48,00	0432	144,00	0432	88,80	0433	0530D	
12	1104	9,60	1108	90,20	1112	104,00	1114	1158	
13	0859	42,00	0901	130,00	0903	40,00	0904	0910	OBSERVED BY SOLRAD 9
13	2232	19,20	2233	70,80	2234	59,20	2233	2245D	
14	0110	9,60	0110	58,00	0116	59,20	0112	0124	
14	0741	14,40	0752	74,10	0753	88,80	0754	0805	
14	0928	24,00	0929	77,30	0929	74,00	0930	0945	
14	1347	57,60	1349	144,00	1348	118,00	1349	1359	
14	1702	19,20	1703	90,20	1705	88,80	1704	1712	
14	1920	28,80	1921	86,90	1921	88,80	1922	1927D	
14	2330	14,40	2345	83,70	2346	88,80	2344	2357	
15	0340	10,00	0342	41,00	0344	21,00	0346	0348	OBSERVED BY SOLRAD 9
15	2203	4,60	2205	38,60	2217	59,20	2205	2306	
18	2119	19,00D	2119E	58,00	2120	21,00	2122	2124	OBSERVED BY SOLRAD 9
19	0748E	1,75D	0807E	51,50D	0748E	74,00D	0748E	0807	
19	1423	0,00D	1423D	32,20	1423	59,20	1425	1432	
19	1543E	5,91	1544	58,00D	1543E	88,80D	1543E	1616	
24	0325E	6,35	0337	48,30	0338	59,20D	0325E	0406	
24	0458	20,00	0500	59,00	0501	22,00	0501	0503	OBSERVED BY SOLRAD 9
24	0640	48,00	0641	144,00	0641	59,20	0641	0644	
24	1155	57,60	1157	144,00	1157	88,80	1159	1200	
25	0041	115,00	0043	288,00	0043	118,00	0044	0053D	
25	0919	98,00D	0919E	270,00D	0919E	67,00	0920	0926	OBSERVED BY SOLRAD 9
29	2302	0,00D	2302D	35,40	2316	59,20	2316	2324	

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1973

	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE								
DAY	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
01	0829	0900	0840	1	5			1	3		1		0828	12246
01	1118	1235	1128	2+	5	5		4	4		3		1117	12246
01	1240	1327	1311	1-	1			1					1237E	12246
02	0430	0522	0442	1-	1				1				0440	12246
02	1807	1915	1833	1	5	1		1	1		10		1813	X-RAY
05	2158	2300	2206	1	5	1		4			7		2204E	12261
06	0920	0940	0928	1+	3	2		1	2		2		0919E	12261
06	1950	2103	1956	1	5	1		2		1	8		1948	12261
08	0826	0840	0830	1	3	2			2		2		0825	12263
08	0910	0925	0913	1+	3				2		2		0910E	12263
08	1505	1530	1511	1-	5			1		1	7		1508E	X-RAY
09	0430	0536	0439	1+	3				2	3	3		0429	12263
11	1127	1145	1130	1-	3				2		2		1125E	12263
11	1159	1220	1203	1-	5				2		1		1200E	12263
12	1100	1135	1115	1+	3	1		2	1		1		1103	12261
12	2202	2231	2204	1-	5				1		7		2200	12261
13	0516	0610	0524	1-	1				1				0514	12259
13	0834	0858	0838	1-	1			1					0834	12264
13	0858	0930	0903	1	3	3	1	2	2		2		0858	12259
13	1548	1555	1550	1-	1						1		1547	12259
13	1807	1850	1815	1-	1				1				1807E	12259
13	1948	2025	1957	1-	5			3	1	1	7		1933	12264
13	2228	2250	2234	1-	5				2		6		2222	12264
14	0108	0130	0119	1-	3				2				0057	12264
14	0748	0820	0756	1	3	1		1	1		1		0734	12264
14	0928	1000	0939	1+	3	3	1	1	2		2		0928E	12259
14	1250	1305	1255	1-	5	1			2		2		1250	12264
14	1346	1410	1356	2	5	4	1	3	3		5		1346	12259
14	1442	1450D	1450	1-	3				1		2		1442	12264
14	1503	1530	1510	1-	1				1		1		1503	12261
14	1701	1830	1710	1-	5				1	2	10		1700	12259
14	1920	2030	1927	1-	5	2			1		8		1920	X-RAY
14	2324	0020	2348	1-	1				1				2322E	12259
15	0339	0354	0342	1-	1				1				0340	X-RAY
15	0831	0840	0833	1-	1					1			0830	12259
18	1022	1050	1027	1-	1	1							1020E	12263
18	2116	2140	2121	1-	5				1		7		2119	X-RAY
20	0719E	0735	0720	1-	1			1					0715	12273
20	1113	1135	1120	1	3	3		2	1		1		1112	12273
21	1155	1219	1202	1-	1			1					1158	12275
22	0857	0910	0900	1-	1						1		0856	12273
22	0923	1047	1015	1-	1			1					0930E	12273
22	1605	1620	1608	1-	1						1		1600	12283
22	2306	2322	2307	1-	1				1				2306	12273
23	1005	1015	1009	1-	1			1					1006	12273
23	1759	1812	1801	1-	1	1							1758	12280
24	0304	0426	0345	1-	1				1				0303	12273
24	0455	0540	0501	1-	1				1				0457	12273
24	0610	0630	0616	1-	1				1				0612	12273
24	0639	0730	0642	1	5				3		1		0639	12273
24	1155	1215	1200	1+	3	1	1	3	2	1	3		1152	12273
25	0040	0205	0046	2	3	2			2	1	1		0040	12273
25	0456	0618	0502	1-	3	1		1	2				0454	12273
25	0915	0955	0921	2	5	3	1	4	3		2		0915E	12273
25	1617	1715	1625	1	3	1		1	1	3	3		1616	12273
25	2358	0018	0004	1-	1	1							2358E	12273
26	1940U	1940D		1-	1	1							1937	12280
26	2358	0030	0003	1-	1				1				2358E	12273
27	0929	0957	0936	1-	1			1					0922	12280
27	1444	1515	1450	1-	5	1		1	2	1	6		1441	12273
27	1638	1650	1640	1-	1						1		1640	12280
27	2124	2215	2129	1	5			1	3	1	10		2124	12273
28	0105	0135	0112	1-	1				1				0103E	12280
28	0725	0816	0755	1	1					1	1		0725	12293
28	1013E	1101	1053	1-	1			1			1		1020	12273

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1973

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
28	1045	1300	1158	1+	1					1	1		1046	12273
29	1120	1200	1135	1-	3				1		2		1125E	12293
29	1256	1306	1303	1-	1			1					*	
30	0459	0520	0502	1-	1				1				0505E	12298
30	1225	1240	1230	1-	1						1		1222	12298
30	1330	1345	1335	1-	1						1		1328E	12293
31	0909	0930	0914	1	3	1		1	1		1		0905	12298
31	1549	1558	1552	1-	1			1					1545	12280

STATIONS REPORTING FOR MARCH 1973

AAVSO (A1, A8, A17, A23, A26, A32, A34) (SEA)
(A1, A19, A21 A30, A31, A33, A36, A37, A38) (SES)
BOULDER (BO) (SCNA)
DARMSTADT (DA) (SWF)
ENKOPING (SW) (SWF)
GESASHI (LORAN-C) (GE) (LF-SPA, SES)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
JUPITER (LORAN-C) (JP) (LP-SPA, SES)
KUHLUNGSBORN (KU) (SEA, SPA)
MANILA (MA) (SWF, SPA)
MARCUS (LORAN-C) (MR) (LF-SPA, SES)
MCMATH (MC) (SWF, SCNA)
NANTUCKET (LORAN-C) (NT) (LF-SPA, SES)
NEUSTRELITZ (NU) (SWF, SCNA)
PANSKA VES (PU) (SWF, SEA, SES)
POITIERS (PO) (SEA)
PRESTON (LO) (SEA)
SANDUR (LORAN-C) (SA) (LF-SPA, SES)
SAO PAULO (UM) (SPA, SES)
SOFIA (SF) (SES)
SOMERTON (SO) (SWF)
SYLT (LORAN-C) (ST) (LF-SPA, SES)
TABLE MOUNTAIN (TM) (SWF, SPA, LF-SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)
UPOLO POINT (LORAN-C) (UP) (LF-SPA, SES)
WHITE SANDS (WS) (SWF)
YAP (LORAN-C) (YP) (LF-SPA, SES)

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01	1515-1548 WS, 2340-2348 TM
02	1355-1600 UM (17 kHz), 1640-1710 UM (kHz)
03	0402-1315 BO
03-06	2100-1915 A33
04	1202-1932 BO
05	2339-2342 BO
06	0000-1700 BO, 1005-1345 UM (16 kHz), 1605-1635 UM (13 kHz), 2005-2025 UM (13 kHz)
09	1427-1725 UM (17 kHz)
11	0204-0532 MA, 0603-0800 MA, 0828-0850 MA, 0937-1033 MA
12	0013-0204 MA
13	0620-0650 MA, 0730-0800 MA, 1006-1400 UM (16 kHz), 1907-2000 TM
16	1355-1700 UM (17 kHz), 1935-2100 UM (13 kHz), 1830-2045 TM
17	0800-0845 UM (16 kHz)
18	0316-0350 UM (17 kHz), 0816-1259 TM, 1545-1603 UM (17 kHz)
19	2200-2224 TM
20	1005-1336 UM (16 kHz)
21	0150-0417 TM
22	0020-0205 MA, 0404-1745 WS, 0755-0826 UM (16 kHz)
23-31	1545-2400 WS
24	0430-0533 TM, 0755-1002 UM (16 kHz), 1000-2400 BO
25-26	0000-1800 BO
27	0755-0845 UM (16 kHz), 1005-1330 UM (16 kHz)
28	0802-0903 UM (16 kHz)

SID's BY McMATH REGION

MARCH 1973

DAY	46	59	61	63	64	73	75	80	83	93	98	X-RAY	UN-KNOWN	NO FP
01	3													
02	1											1		
03														
04														
05			1											
06			2											
07														
08				2								1		
09				1										
10														
11				2										
12			2											
13		4			3									
14		4	1		4							1		
15		1										1		
16														
17														
18				1								1		
19														
20						2								
21							1							
22						3			1					
23						1		1						
24						5								
25						5								
26						1		1						
27						2		2						
28						3		1						
29										1				1
30										1	2			
31								1			1			

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1973

MAR. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
01	0000	0100	BOUL													
	0000	0024	HARV				0002	0013	1	0000	0019	1				I
	0000	0744	CULG				0340	0742.5	1	0000	0537	1				IS
			CULG							0558						IIIB,W
			CULG							0613	0616					IIIGG,W
	0642	1630	WEIS							0833.4	0835.5	2				IIIGG
			WEIS							1118.1	1124.3	2				IIIGG
			WEIS							1120.1	1134.9	2				II
	1347	2400	HARV				1358	1525	1	1349	1908	1				IN
	1400	2400	BOUL							1728.5	1722.0	1	1720.5	1722.0	1	IIIG
			HARV				1721	1722	2	1720	1722	3	1720	1722	3	IIIG
	1116	2220	SGMR										1721.6	1721.8	2	III
			HARV							1856	1859	2	1856	1859	2	IIIG
			BOUL							1856.3	1858.3	1	1856.3	1858.3	1	IIIG
			SGMR										1857.0	1857.3	2	III
			HARV				1944	2000	1	1943	2000	1				IN
			HARV				2000	2109	1	2000	2109	1				I
	2045	2400	CULG				2052	2116								IN
			HARV				2109	2400	1	2109	2400	1				IN
			CULG				2251.5	2400								IN
02	0000	0735	CULG				0000	0735	1	0620	0735	1				IS
	0000	0100	BOUL													
	0000	0026	HARV				0001	0016	1	0000	0020	1				I
			CULG							0108.5	0118	1	0108.5	0118	1	IIIG
			CULG							0452	0453.5	1	0452.5	0453	1	IIIG
			CULG							0513	0518	1				IIIG
			CULG							0527		1				IIIB
	0643	0904	WEIS													
	0910	1632	WEIS							1130.0	1131.5	1				IIIG
	1052	2204	SGMR										1736.1	1736.7	2	III
	1700	2400	BOUL							1736.2	1736.5	2	1736.2	1736.5	2	III
	1346	2400	HARV				1741	1817	1							IN
			BOUL							1757.7	1759.0	2	1757.7	1759.0	2	IIIG
			HARV				1758	1759	2	1758	1759	3	1758	1759	3	IIIG
			SGMR										1758.3	1759.1	3	III
			HARV				1817	2106	2	1800	2120	2				I
			BOUL							1836.4	1836.6	1	1836.4	1836.6	1	III
	2045	2400	CULG							2045	2211	1				IS
			HARV							2120	2316	1				I
03	0000	0027	HARV													
	0000	0100	BOUL													
	0000	0743	CULG							0545	0545.5	1				IIIG
	0637	1633	WEIS							1345.0	1345.6	2				IIIG
	1121	2231	SGMR										1345.2	1345.8	3	III
	1330	2400	BOUL							1345.2	1345.8	1	1345.2	1345.8	1	III
	1346	2400	HARV				1625	1629	1							I
			BOUL										1650.6	1651.0	1	III
			HARV				1801	2115	1	1801	1920	1				IN
			HARV							1920	2008	1				I
			HARV							2008	2115	1				IN
	2044	2400	CULG							2107.5	2139.5	1				I
			CULG							2119.5	2120	1				IIIG
			HARV				2122	2205	1	2115	2220	1				I
			CULG							2126.5	2128	1				IIIG
			BOUL										2127.3	2127.5	1	III
			BOUL							2131.1	2131.3	1	2131.1	2131.3	1	III
			CULG							2136.5	2140.5	1				IIIG
			HARV							2137	2138	1	2138		1	IIIG
			BOUL							2137.0	2138.9	1	2137.0	2138.9	1	IIIG
			CULG							2204	2208					IIIG,W
			HARV				2222	2254	1	2220	2346	1				IN
04	0000	0028	HARV													
	0000	0100	BOUL													
	0000	0743	CULG							0340.5						IIIB,W
			CULG							0351.5		1				IIIB
	0637	0909	WEIS													
	0913	1633	WEIS													
	1347	2400	HARV				1417	1608	1	1421	1611	1				IN
	1338	2400	BOUL							1703.9	1704.2	2	1703.9	1704.2	2	III
			BOUL							1745.6	1747.3	2	1745.6	1747.3	2	IIIG
			HARV							1746	1747	2	1746	1747	2	IIIG
	1119	2232	SGMR										1746.0	1747.1	2	III
			BOUL							1933.5	1933.6	1	1933.5	1933.6	1	III
			BOUL							1941.2	1942.6	1	1941.2	1942.6	1	IIIG
			HARV							1942	1944	2	1942	1944	2	IIIG
			BOUL							1943.0	1944.2	2	1943.0	1944.2	2	IIIG
			SGMR										1943.5	1944.2	1	III
	2044	2400	CULG							2104	2104.5	1				IIIG
			BOUL							2104.3	2104.4	1				III
			HARV				2303	2304	1	2303	2304	1				I
			BOUL							2305.7	2305.8	1	2305.7	2305.8	1	III
			BOUL							2337.2	2337.5	1	2337.2	2337.5	1	III
05	0000	0100	BOUL													
	0000	0029	HARV							0001	0022	1				IN
	0000	0743	CULG				0151.5	0213		0201	0218					IW
			CULG							0653.5	0654.5	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1973

MAR. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
05			CULG							0656.5	0658	1				IIIG
	0637	1633	WEIS							0840.9	0841.6	1				IIIG
	1117	2234	SGMR													
			WEIS							1431.4	1431.6	1				IIIG
	1330	2400	BOUL							1431.6	1433.6	1	1431.6	1433.6	1	IIIG
	2044	2400	CULG							2101.5		1				IIIB
			CULG							2141	2141.5	1				IIIG,U
			BOUL							2141.1	2141.2	1	2141.1	4141.2	1	III
			CULG				2241.5	2242		2239	2400					IS,W
	1336	2400	HARV				2242	2309	1	2210	2400	1				IN
			CULG							2343.5	2345	1				IIIG
			BOUL							2343.7	2344.3	1	2343.7	2344.3	1	IIIG
06	0000	0100	BOUL													
	0000	0030	HARV							0000	0027	1				IN
	0000	0743	CULG				0432	0434	1	0432	0433	1	0432.5	0433	1	IIIG,V
			CULG							0739.5		1				IIIB
	0637	0945	WEIS							0918.3	0919.7	1				IIIG
	0953	1633	WEIS													
	1116	2234	SGMR													
	1331	2400	HARV				1952	1953	2	1952	1953	2				IIIG
	1330	2000	BOUL										1952.0	1954.5	1	IIIG
	2043	2400	CULG													
	2130	2400	BOUL													
07	0000	0100	BOUL													
	0000	0743	CULG													
	0000	0031	HARV													
	0628	1633	WEIS													
	1114	2236	SGMR													
	1330	2400	BOUL													
	2042	2400	CULG													
	1332	2400	HARV							2304	2400	1				I
08	0000	0032	HARV							0000	0030	1				I
	0000	0100	BOUL													
	0638	1020	WEIS													
	0000	0743	CULG							0719		1				IIIB
	1027	1635	WEIS													
	1112	2237	SGMR													
	1330	2400	BOUL													
	1331	2400	HARV													
	2042	2400	CULG							2043	2045					IIIGG,W
09	0000	0100	BOUL													
	0000	0033	HARV													
	0000	0743	CULG							0636	0637.5	1				IIIG
	0658	1642	WEIS													
	1111	2238	SGMR													
	1330	1580	BOUL													
	1332	2400	HARV							1344	1425	1				IN
	1800	2400	BOUL													
	2042	2400	CULG				2050	2400								IS,W
			HARV							2240	2354	1				I
10	0000	0034	HARV													
	0000	0743	CULG				0000	0743								IN,W
	0000	0100	BOUL													
			CULG							0538.5						IIIB,W
	0627	1046	WEIS							0740.2	0740.3	2				IIIG
	1106	1536	WEIS							1300.8	1301.2	1				IIIG
	1109	2240	SGMR										1300.9	1302.1	2	III
	1331	2400	HARV				1354	2246	1	1343	2253	1				IN
	1330	2400	BOUL							1356.0	1356.6	1	1356.0	1356.6	1	IIIG
			WEIS							1358.4	1400.7	2				IIIG
			SGMR										1358.5	1400.0	2	IIIG
			BOUL							1358.5	1401.3	2	1358.5	1401.3	2	IIIG
			HARV				1359	1401	1	1358	1401	2				IIIGG
	2042	2400	CULG				2042	2400		2101.5	2400					IS,W
			CULG							2104	2104.5	1				IIIG
			CULG							2129	2334					IIIN,W
			CULG				2139	2141	1	2139	2141	2				IIIG,U
			HARV				2140		1	2139	2141	2				IIIGG
			HARV				2145	2147	1	2145	2150	2				IIIGG
			CULG				2145	2149.5	1	2145	2150	2				IIIGG,U
			BOUL							2145.4	2149.2	1				IIIG
			BOUL							2216.7	2216.8	1				III
			CULG				2217.5	2229	2	2220.5	2229	2				IIIGG
			HARV				2218	2229	3	2218	2229	3	2227	2229	2	IIIGG
			BOUL							2221.7	2221.8	1				III
			BOUL							2226.9	2229.5	2	2226.9	2229.5	2	IIIG
			SGMR										2227.0	2228.5	1	III
			CULG				2236.5		1	2236.5		1				IIIB
			CULG				2251.5		1	2251.5		2				IIIB
			HARV							2300	2303	1				IIIGG
			BOUL							2300.4	2300.6	1	2300.4	2300.6	1	III
			BOUL										2302.6	2302.8	1	III
			CULG							2332	2333.5	1				IIIG
			HARV							2332	2333	1				IIIG
			BOUL							2332.6	2332.7	1	2332.6	2332.7	1	III

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MAR. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
11	0000	0742	CULG							0000	0742					IS,W
			CULG				0000	0742								IN,W
	0000	0834	HARV													
	0000	0100	BOUL							0011.6	0012.2	1	0011.6	0012.2	1	III
			CULG				0123.5	0742		0012	0732.5					IIIN,W
			CULG							0123.5	0124	1				IIIG
			CULG				0221.5	0222	1	0221.5	0222	1				IIIG
			CULG				0241		1	0241		1				IIIB
			CULG							0252.5	0255.5	1	0254	0255	1	IIIG
			CULG							0257	0258	1				IIIG
			CULG							0305.5		2				IIIB
			CULG				0313	0314.5	1	0313	0314.5	2				IIIG
			CULG							0434	0434.5	1				IIIG
			CULG				0650	0650.5	1	0650	0650.5	1				IIIG
			CULG							0659.5	0703	1				IIIGG,V
			CULG				0702	0703	1							IIIGG
			CULG							0721	0722	1				IIIG
	0732	1651	NEIS							0827.2	0828.8	1				IIIG
			NEIS							0901.8	0902.0	1				IIIG
			NEIS							0905.4	0905.7	1				IIIG
			NEIS							0914.6	0914.7	1				IIIB
			NEIS							0932.3	0932.7	2				IIIG
			NEIS							0941.8	0942.4	1				IIIG
			NEIS							1035.5	1035.8	2				IIIG
			NEIS							1054.3	1054.4	1				IIIB
			NEIS							1058.7	1101.4	2				IIIG
			NEIS							1115.4	1119.4	1				IIIG
			NEIS							1126.7	1128.9	3				IIIG
	1106	2241	SGMR										1127.2	1129.8	3	IIIG
			NEIS							1144.8	1145.3	1				IIIG
			NEIS							1158.5	1203.5	2				IIIGG
			SGMR										1159.4	1202.1	3	IIIG
			NEIS							1208.1	1210.7	2				IIIG
			SGMR										1208.9	1210.4	2	IIIG
			NEIS							1216.2	1216.3	1				IIIB
	1331	2400	HARV							1337	1814	1				IN
			HARV							1439	1441	2				IIIGG
	1300	2400	BOUL							1439.4	1440.5	2	1439.4	1440.5	2	IIIG
			NEIS							1439.5	1440.5	1				IIIG
			SGMR										1439.7	1441.0	2	III
			HARV							1443	1444	1				IIIG
			NEIS							1443.2	1443.3	1				IIIG
			BOUL							1443.3	1443.7	1	1443.3	1443.7	1	III
			HARV				1445	1447	3	1445	1446	1				UNCL
			NEIS				1445.1	1446.2	2							UNCL
			HARV							1450	1504	2				IIIN
			NEIS							1455.3	1455.6	1				IIIG
			BOUL							1502.5	1502.6	1	1502.5	1502.6	1	III
			NEIS							1503.7	1503.8	1				IIIG
			BOUL							1506.2	1506.5	1				IIIG
			SGMR										1642.9	1644.6	2	IIIG
			HARV							1643	1645	2	1643	1645	3	IIIG
			BOUL							1643.0	1644.6	2	1643.0	1644.6	2	IIIG
			BOUL							1646.8	1646.8	1				III
			HARV							1716		3	1716		3	IIIG
			BOUL							1716.2	1716.7	2	1716.2	1716.7	2	III
			SGMR										1716.3	1716.7	2	III
			HARV				1720	1751	1							IN
			BOUL							1745.9	1746.6	2	1745.9	1746.6	2	III
			HARV							1746	1747	2	1746	1747	3	IIIG
			SGMR										1746.3	1746.6	2	III
			BOUL							1749.5	1749.6	1				III
			BOUL							1817.9	1818.2	1	1817.9	1818.2	1	III
			BOUL							1825.6	1826.2	1	1825.6	1826.2	1	III
			SGMR										1931.8	1935.2	3	V
			BOUL							1931.9	1935.4	2	1931.9	1935.4	2	III
			HARV				1932	1933	2	1931	1935	3	1932	1935	3	IIIGG,U,V
			BOUL							1934.4	1934.9	2	1934.4	1934.9	2	III
			HARV							1939	1948	2	1939	1948	2	IIIG
	2042	2400	CULG							2101	2352					IIIN,W
			CULG				2104	2200								IS,W
			HARV							2113	2114	2				IIIG
			CULG				2113.5	2114	1	2113.5	2114	1				IIIG
			BOUL							2113.5	2114.0	1	2113.5	2114.0	1	IIIG
			BOUL							2212.7	2212.8	1	2212.7	2212.8	1	III
			BOUL										2333.7	2334.1	1	III
12	0000	0035	HARV													
	0000	0100	BOUL										0023.4	0023.7	1	III
	0000	0742	CULG							0023.5	0742					IIIN,W
			CULG							0124		1	0124		1	IIIB
			CULG				0202		1	0201	0202	1				IIIG
			CULG				0204	0205	1	0204	0206	2	0204	0205.5	1	IIIG
			CULG				0223	0224	1							FASTDRIFT
			CULG							0418	0419.5	1				IIIG
			CULG							0420	0426	1				IV
			CULG							0448	0742	1				IS
			CULG				0511.5	0515	1	0511.5	0515.5	3	0511.5	0515.5	2	IIIGG,V
			CULG							0606	0606.5	1	0606	0606.5	1	IIIG
			CULG				0614.5	0742								IS,W

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				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
12	0619	1245	WEIS							0625.0	0740.0	1					I
			CULG							0710	0712	1					IIIG
			WEIS							0710.3	0712.3	1					IIIG
			WEIS							0713.5	0714.8	1					IIIG
			CULG				0717.5	0718	1	0717.5	0718	1					IIIG
			WEIS							0717.6	0717.9	1					IIIG
			WEIS							0738.9	0739.3	1					IIIG
			CULG				0739	0740.5	1								IIIG
			WEIS							0749.2	0749.4	2					IIIG
			WEIS							0756.3	0756.5	1					IIIG
			WEIS							0900.5	0901.3	1					IIIG
			WEIS							0900.7	0900.5	2					IIIG
			WEIS							0918.7	0918.9	1					IIIG
			WEIS							0930.8	0930.2	3					IIIGG
			WEIS							1106.2	1113.5	2					IIIGG
			WEIS							1108.7	1120.2	2				II	
	1105	2242	SGMR										1111.8	1121.2	1		IIIG
			WEIS							1130.5	1131.6	1					IIIG
			WEIS							1138.6	1139.8	1					IIIG
			WEIS							1139.3	1156.5	2				IV	
			SGMR										1139.3	1142.1	3		III
			WEIS							1139.5	1155.5	2					IIIGG
	1257	1653	WEIS							1300.3	1305.6	2					IIIGG
			SGMR										1301.5	1305.8	2		IIIG
	1332	2400	HARV							1333	1708	1					I
	1300	2400	BOUL							1403.0	1515.0	1	1403.0	1515.0	1		IIIN
			WEIS							1422.1	1422.2	1					IIIB
			BOUL							1516.1	1516.3	1	1516.1	1516.3	1		III
			HARV				1543	1546	1	1543	1546	2					IIIGG
			WEIS							1543.0	1545.7	1					IIIG
			WEIS							1549.7	1556.2	1					IIIG
			BOUL							1549.8	1556.1	2	1549.8	1556.1	2		IIIGG
			SGMR										1549.9	1555.8	2		IIIG
			HARV							1550	1555	3	1550	1555	3		IIIGG
			HARV							1617	1620	1	1617	1620	2		IIIG
			BOUL							1617.1	1619.9	1	1617.1	1619.9	1		IIIG
			SGMR										1619.3	1619.7	2		III
			HARV							1630	1634	2	1630	1634	3		IIIGG
			BOUL							1630.4	1636.1	2	1630.4	1636.1	2		IIIGG
			WEIS							1631.2	1635.9	2					IIIGG
			SGMR										1631.8	1636.0	2		III
			HARV				1635	1636	1	1635	1636	3	1635	1636	3		IIIG
			HARV							1702	2045	2	1702	2045	2		IIIN
			BOUL							1702.0	1702.1	1	1702.0	1702.1	1		III
			BOUL							1704.0	1704.6	1	1704.0	1704.6	1		III
			SGMR										1704.5	1704.7	2		III
			HARV							1708	2200	1					IN
			BOUL							1716.9	1737.6	1	1716.9	1737.6	1		CONT
			BOUL							1752.5	1753.2	2	1752.5	1753.2	2		IIIG
			SGMR										1752.8	1753.2	3		III
			HARV							1753	1754	3	1753	1754	3		IIIG
			HARV							1815	1816	3	1815	1816	3		IIIGG
			SGMR										1815.1	1816.0	3		III
			BOUL							1815.2	1816.2	2	1815.2	1816.2	2		III
			BOUL							1821.5	1822.9	1	1821.5	1822.9	1		III
			HARV							1828	1830	2	1828	1829	2		IIIG
			BOUL							1828.6	1829.6	1	1828.6	1829.6	1		III
			BOUL							1828.6	1832.2	1	1828.6	1832.2	1		CONT
			SGMR										1828.8	1829.1	1		III
			BOUL							1832.7	1833.2	2	1832.7	1833.2	2		IIIG
			SGMR										1832.9	1833.1	1		III
			HARV							1833		2	1833		2		IIIG
			BOUL							1836.6	1836.9	1	1836.6	1836.9	1		III
			BOUL							1837.0	2400.0	3	1837.0	2400.0	3		IIIN
			HARV							1902	1903	3	1902	1903	3		IIIG
			SGMR										1902.8	2025.0	2		IIIG
			HARV							1923	1926	2	1923	1926	2		IIIGG
			HARV				1939	2022	2								IN
			HARV							1952	1956	2	1952	1956	3		IIIGG
			HARV				2023	2028	2	2021	2028	2	2021	2024	3		IIIGG
	2113	2400	CULG				2113	2400		2113	2400						IS,W
			CULG				2117.5	2400									IIIN,W
			CULG							2117.5	2400	1					IIIS
			SGMR										2132.2	2140.8	2		IIIG
			HARV				2139	2141	1	2132	2141	2	2132	2141	2		IIIGG
			CULG				2139	2141	1	2132	2141	2	2132	2135	1		IIIGG,V
			HARV							2200	2400	1					I
			HARV				2200	2205	3	2200	2205	3					IIIGG
			CULG				2202	2203	2	2202	2203	2					IIIG
			HARV				2210	2357	1								IN
			CULG							2222		1	2222		1		IIIB
			CULG							2243	2244.5	1	2243	2244.5	1		IIIG
			HARV							2243	2244	2	2243	2244	2		IIIG
			HARV				2256	2258	2	2256	2257	2	2256	2257	2		IIIG
			CULG				2256.5	2257	2	2256.5	2257	2	2256.5	2257	1		IIIG
			CULG				2304.5	2306	2	2301.5	2306	3	2301.5	2306	2		IIIGG,V
			HARV				2305	2308	2	2302	2308	3	2302	2308	3		IIIGG
			HARV							2352	2354	1					IIIG
13	0000	0732	CULG				0000	0732		0000	0732						IN,W

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				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
13	0000	0100	BOUL							0000.0	0100.0	2	0000.0	0100.0	2	IIIN
	0000	0036	HARV							0001	0006	1				IIIGG
			CULG							0001.5	0732	1				IIIS
			CULG							0001.5	0006	1	0001.5	0004	1	IIIG
			CULG				0003	0725.5								IIIN,W
			HARV							0003	0031	1				IN
			HARV				0013	0019	1	0013	0019	2				IIIGG
			CULG				0015.5	0016	1	0015.5	0019	1	0018	0019	1	IIIGG
			CULG							0021.5		1	0021.5	0022	1	IIIB
			CULG							0044.5		1	0044.5		1	IIIB
			CULG				0051.5	0052.5	1							IIIG
			CULG				0054	0055	1							IIIG
			CULG				0200.5	0201	2							FAST DRIFT
			CULG				0229.5	0231	1							IIIG
			CULG							0232.5	0233	1	0232.5		1	IIIG
			CULG							0250.5	0251	2	0250.5	0251	2	IIIG
			CULG							0319.5	0328	2	0319.5	0327.5	1	IIIGG
			CULG				0330.5	0335	1							IIIG
			CULG				0441.5		1	0441	0444	2	0441.5	0444	1	IIIGG
			CULG							0453	0453.5	1				IIIG
			CULG							0459	0504	2				IS
			CULG				0513	0524	1							IIIGG
			CULG							0515	0515.5	2				IIIG
			CULG							0528		1				IIIB
			CULG				0544.5	0548.5	2	0542.5	0552	3	0542.5	0549	1	IIIGG
			CULG							0600.5	0601	1				IIIG
	0617	1654	WEIS							0637.5	0637.9	1				IIIG
			CULG							0655	0655.5	1				IIIG
			WEIS							0655.8	0656.5	1				IIIG
			CULG							0659.5	0701	1				IIIG
			WEIS							0700.2	0701.2	1				IIIG
			CULG				0702	0703	1							FAST DRIFT
			CULG				0707.5	0708	1							IIIG
			WEIS							0727.9	0728.4	1				IIIG
			CULG							0739	0741	1				IIIG
			WEIS							0740.3	0740.5	1				IIIG
			WEIS							0745.8	0746.1	1				IIIB
			WEIS							0810.0	0812.3	2				IIIGG
			WEIS				0828.8	0829.8	1							IIIG
			WEIS				0841.9	0846.1	1							IV
			WEIS							0845.1	0845.9	1				IIIG
			WEIS							0858.5	0901.5	2				IIIG
			WEIS							0902.5	0929.5	2				IV
			WEIS							0921.4	0922.5	1				IIIG
			WEIS							0957.5	1001.7	2				IIIG
			WEIS							1049.3	1049.5	1				IIIG
			WEIS							1113.5	1113.8	1				IIIG
			WEIS							1126.1	1128.1	2				IIIG
			WEIS							1149.5	1149.9	1				IIIG
			WEIS				1241.2	1241.3	1							IIIG
			WEIS				1245.0	1246.5	1							IIIG
			WEIS							1311.2	1312.3	1				IIIG
	1103	2243	SGHR										1312.1	1312.6	1	III
	1332	2400	HARV				1346	1355	1	1340	1405	1				IN
			WEIS							1404.8	1406.3	1				IIIG
	1300	2400	BOUL							1406.0	1406.4	2	1406.0	1406.4	2	IIIG
			BOUL							1406.5	1500.0	1				IIIN
			HARV							1444	1446	1				IIIGG
			BOUL							1444.5	1444.6	1	1444.5	1444.6	1	III
			HARV							1515		1				IIIG
			HARV				1550	1551	3	1550	1551	3				IIIGG
			WEIS							1550.0	1550.6	2				IIIG
			BOUL							1647.6	1648.8	2	1647.6	1648.8	2	IIIG
			WEIS							1647.7	1648.0	1				IIIG
			SGHR										1647.8	1648.2	2	III
			HARV				1648	1649	1	1647	1649	3	1647	1649	3	IIIGG
			BOUL							1654.8	1655.2	1	1654.8	1655.2	1	IIIG
			HARV							1655	1909	2	1655	1816	1	IIIN
			BOUL							1715.9	1716.7	1	1715.9	1716.7	1	IIIG
			HARV							1729	1731	2				IIIGG
			BOUL							1743.2	1743.2	1	1743.2	1743.2	1	III
			BOUL							1746.7	1749.4	1	1746.7	1749.4	1	IIIG
			HARV							1747	1749	2				IIIG,U
			HARV				1800	1801	1	1800	1801	2				IIIGG
			HARV				1800	1816	1							IN
			BOUL							1815.8	1816.5	1	1815.8	1816.5	1	IIIG
			BOUL							1822.2	1823.1	1	1822.2	1823.1	1	IIIG
			HARV							1827	1830	2				IIIG,U
			SGHR										1827.9	1828.2	2	III
			BOUL							1908.2	1909.1	1	1908.2	1909.1	1	IIIG
	2042	2400	CULG							2123	2319.5					IIIN,W
			BOUL							2303.8	2305.3	2	2303.8	2305.3	2	IIIG
			CULG							2304	2305	2	2304	2305	1	IIIG,V
			BOUL							2319.5	2319.8	2	2319.5	2319.8	2	III
14	0000	0037	HARV				0019	0020	1	0019	0020	2				IIIG
	0000	0741	CULG				0019.5	0020	1	0019.5	0020	1				IIIG
	0000	0100	BOUL							0019.6	0019.8	1	0019.6	0019.8	1	III
			CULG						1	0110	0716					IIIN,W
			CULG							0124		1				IIIB

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MAR. 1973	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
14			CULG							0136	0137	1					IIIG
			CULG							0139		1	0139		1		IIIB
			CULG				0141		1	0141		1	0141		1		IIIB
			CULG							0218		1					IIIB
			CULG				0612.5	0613	1								IIIG
			CULG				0701	0702.5	1								RS
	0618	1205	WEIS							0927.4	0928.7	2					IIIG
			WEIS							1127.8	1128.6	1					III
			WEIS							1220.0	1600.0	2					
	1300	2400	BOUL							1315.0	1518.9	1	1315.0	1518.9	1		CONT
	1332	2400	HARV				1347	1456	1	1332	1456	1					I
	1214	1654	WEIS							1354.1	1354.5	1					IIIG
			BOUL							1354.1	1354.9	2	1354.1	1354.9	2		III
	1102	2244	SGMR										1354.4	1354.9	2		III
			HARV				1456	1540	1	1456	1540	2					IC
			BOUL							1511.1	1521.2	1				II	
			BOUL							1515.0	1615.0	1				IV	
			HARV				1540	2259	1	1540	2400	1					I
			BOUL										1704.7	1704.9	1		III
			BOUL										1707.3	1707.8	1		III
			BOUL							1712.6	1712.7	1	1712.6	1712.7	1		III
			BOUL							2018.0	2018.3	1	2018.0	2018.3	1		III
	2042	2400	CULG							2042	2400	1					IS
			CULG				2059	2356.5									IS,W
			CULG							2122		1					IIIB
			CULG				2252.5	2254.5	1								IIIG
			HARV				2253	2254	1	2254		1					IIIG
			HARV							2255	2256	2					UNCL
			CULG				2255	2255.5	1	2255	2257	1				II	
			CULG							2348.5	2351	1					IIIG
			HARV							2349	2351	1					IIIG
			BOUL							2349.1	2351.9	1	2349.1	2351.9	1		IIIG
15	0000	0100	BOUL														
	0000	0741	CULG							0000	0741						IS,W
	0000	0038	HARV														
			CULG							0020	0020.5	1					IIIG
			CULG							0140	0140.5	1					IIIG
			CULG							0202.5	0204	1					IIIG
			CULG							0236	0238	1					IIIG,V
			CULG							0349	0350	1					IIIG
			CULG				0521	0741									IS,W
	0618	1654	WEIS							1211.6	1211.7	1					IIIB
			WEIS							1213.3	1213.4	2					IIIB
	1331	2400	HARV							1334	1336	1					IIIG
	1300	2400	BOUL							1458.7	1458.8	1					III
			HARV							1508	1509	3					IIIG
			WEIS							1508.5	1508.7	2					IIIG
			BOUL										1631.3	1632.1	1		III
	1100	2246	SGMR										1631.5	1632.0	2		III
			BOUL										1743.7	1744.1	1		III
			BOUL							1800.9	1801.4	1	1800.9	1801.4	1		III
			BOUL							1814.0	1815.5	2	1814.0	1815.5	2		III
			HARV							1824	1825	3	1824	1825	3		IIIG,V
			SGMR										1824.0	1825.0	3		III
	2042	2400	CULG				2043	2120	1	2056.5	2120	1					IS
			HARV				2057	2206	1	2055	2400	1					I
			CULG				2120	2222	1	2120	2400	2					IS,CONT
			CULG							2120		1					IIIB
			HARV							2124	2143	2				IV	
			BOUL							2240.0	2400.0	1	2240.0	2400.0	1	IV	
16	0000	0038	HARV				0000	0033	1	0000	0033	1					I
	0000	0130	BOUL							0000.0	0030.0	1	0000.0	0030.0	1	IV	
	0000	0741	CULG				0003	0741	1	0000	0030	1					IS
			CULG							0040.5							IIIB,W
			CULG							0618	0741	1					IS
	0619	1125	WEIS							0630.0	0750.0	1					I
	1059	2247	SGMR														
	1138	1653	WEIS														
	1331	2400	HARV							1407	2400	1					I
			HARV				1629	2222	1								IN
	1300	2400	BOUL							1908.4	1908.7	1					III
	2041	2400	CULG				2041	2236	1	2041	2335	1					IS
			CULG							2059.5		1					IIIB
			CULG							2125							IIIB,W
17	0000	0130	BOUL														
	0000	0038	HARV							0000	0032	1					I
	0000	0741	CULG							0040.5	0706						IN,W
			CULG							0233.5		1					IIIB
			CULG							0250		1					IIIB
			CULG							0337		1					IIIB
	0612	1653	WEIS														
	1056	2248	SGMR														
	1300	2400	BOUL														
	1332	2400	HARV														
	2040	2151	CULG														
	2206	2400	CULG														
18	0000	0130	BOUL														

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				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
18	0000	0039	HARV													
	0000	0740	CULG							0222	0625.5					IIIN,W
			CULG				0323.5	0328.5								IS,W
	0613	1009	HEIS													
	1017	1654	HEIS													
	1331	2152	HARV							2119	2120	2	2119	2120	2	UNCL
	1300	2400	BOUL							2119.2	2119.9	2	2119.2	2119.9	2	III
	1854	2249	SGMR										2119.4	2119.9	1	III
			BOUL							2340.4	2342.4	2	2340.4	2342.4	2	IIIG
	2040	2400	CULG							2340.5	2342	1				IIIG
19	0000	0130	BOUL													
	0000	0840	HARV													
			CULG							0049	0058					IIIG,W
	0000	0740	CULG				0049	0108		0049	0127					IS,W
			CULG				0132			0132						IIIB,W
	0613	1650	HEIS													
	1331	2400	HARV							1506	1550	1				IN
	1300	2400	BOUL							1544.9	1545.8	1				III
			HARV							1545		1				IIIG
			BOUL										1954.9	1955.4	1	III
	1853	2250	SGMR										1955.8	1955.4	1	III
			BOUL							2058.8	2102.6	2	2058.8	2102.6	2	IIIGG
	2048	2400	CULG							2059	2102.5	1				IIIGG,U
			HARV							2059	2102	2	2059	2102	2	IIIG,V
			SGMR										2059.8	2059.9	2	III
			CULG							2107	2107.5					IIIG,W
			CULG							2213	2213.5	1				IIIG
			CULG							2343	2344					IIIG,W
20	0000	0130	BOUL													
	0000	0841	HARV				0032	0033	1	0032	0033	2				IIIG
	0000	0740	CULG				0032.5	0033	1	0032.5	0033	1				IIIG
			CULG							0108	0108.5	1				IIIG
			CULG				0116.5	0118	1	0116.5	0118	1				IIIG
			CULG							0125		1				IIIB
			CULG							0150.5	0151					IIIB,W
			CULG				0507	0508	1	0507	0508	1				IIIG
			CULG				0511	0512	1	0511	0512	1				IIIG,U
			CULG				0713.5			0713.5						IIIB,W
			CULG				0718	0719.5		0718	0719					IIIG,W
			CULG				0720.5	0721.5		0720.5	0722					IIIG,W
	0820	0947	HEIS													
	1034	2251	SGMR													
	1002	1659	HEIS							1111.8	1115.2	2				IIIGG
			HEIS							1116.2	1123.3	1				II
			HEIS							1117.3	1117.9	2				IIIG
	1316	2400	HARV							1345	1346	1				IIIG
			HARV				1429	1430	2	1429	1430	2				IIIG
			HARV							1623		1				IIIG
			HARV				1757	1802	1	1757	1802	1				IIIGG
			HARV				1920	1921	1	1920	1921	2				IIIGG,U
			HARV				1949	1950	1	1949	1950	1				IIIG,U
			HARV							2039	2040	1				IIIG
	2039	2400	CULG				2106	2243		2106	2340					IIIN,W
			HARV				2132	2135	2	2132	2135	3				IIIGG,U
			CULG				2132.5	2135	2	2132.5	2135	2				IIIGG,U
			HARV				2202	2204	2	2202	2204	2				IIIGG
			CULG				2202.5	2203.5	1							IIIG
			CULG				2229.5	2230.5	1	2229.5	2230.5	1				IIIG
			HARV				2230	2231	1	2228	2231	2				IIIGG
			HARV				2241	2243	1	2241	2243	1				IIIG
			HARV				2256	2259	2	2256	2259	2				IIIGG
			CULG				2256.5	2259	1	2256.5	2259	1				IIIGG,V
	1300	2400	BOUL							2257.8	2258.9	1				IIIG
			CULG							2315	2315.5	1				IIIG
			CULG							2339		1				IIIB,U
			HARV							2339	2340	1				U
21	0000	0130	BOUL													
	0000	0841	HARV							0012	0014	1				IIIG
	0000	0740	CULG				0012.5	0013		0012.5	0013					IIIG,W
			CULG							0023	0138					IS,W
			CULG				0035			0035						IIIB,W
			CULG				0054	0054.5		0054	0054.5					IIIG,W
			CULG				0119		1	0119		1				IIIB
	1316	2400	HARV							1408	1409	1				IIIG
	1300	2400	BOUL										1438.8	1708.8	1	CONT
			BOUL							1527.7	1528.8	1	1527.7	1528.8	1	III
			BOUL							1531.1	1531.2	1	1531.1	1531.2	1	III
			BOUL							1541.6	1542.3	1	1541.6	1542.3	1	IIIG
			HARV				1639	1641	1	1639	1641	2	1640	1641	2	IIIGG
	0601	1703	HEIS							1639.5	1648.5	1				IIIG
			BOUL							1639.7	1648.4	1	1639.7	1648.4	1	IIIG
	1032	2252	SGMR										1639.8	1648.3	1	III
			BOUL										1644.7	1645.8	1	III
			HARV							2010	2012	1				IIIG
			HARV							2242	2245	2				I
	2039	2400	CULG				2243	2245	1	2242	2245	1				IIIG
22	0000	0130	BOUL													

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				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
22	0000	0042	HARV													
	0000	0737	CULG				0059.5	0218	1	0059.5	0235	1				IS,CONT
			CULG							0235.5						IIIB,W
			CULG				0706		1							FAST DRIFT
	1317	1327	HARV													
	1436	1701	HARV													
	1706	2400	HARV							1828	1829	3	1828	1829	3	IIIG,V
	1300	2400	BOUL										1828.2	1829.9	2	III
			HARV							1839	2011	2	1848	1926	2	IIIN
			BOUL							1847.8	1848.0	1	1847.8	1848.8	1	III
			BOUL							1855.5	1855.8	1	1855.5	1855.8	1	III
			BOUL										1925.6	1925.7	1	III
			BOUL							2011.2	2011.6	2				III
			HARV				2025	2028	2	2025	2029	2	2028		2	IIIGG
			HARV							2118	2121	3	2118	2121	3	IIIGG
	2039	2400	CULG							2118.5	2121	2				IIIG,V
	1055	2254	SGMR										2119.0	2121.1	2	IIIG
			CULG							2146	2146.5	1				IIIG
			HARV				2304	2307	3	2306		1				IIIGG
			CULG							2305	2305.5	1				IIIG,U
			CULG				2306	2307	1							IIIG
			CULG				2318		1	2318	2318.5	1				IIIG
			HARV							2318	2319	1				IIIG
			HARV				2328	2329	3	2328	2329	1				IIIGG
			CULG				2328	2329	1							IIIG
			CULG				2331	2333								IIIG,W
			BOUL							2331.6	2333.6	2	2331.6	2333.6	2	IIIG
23	0000	0042	HARV													
	0000	0739	CULG							0000.5		1				IIIB
			CULG							0014.5		1				IIIB
	0000	0130	BOUL							0014.6	0014.9	1	0014.6	0014.9	1	III
			CULG							0019.5	0020	1				IIIG
			BOUL										0046.3	0046.9	1	III
			CULG							0047.5		1				IIIB
			BOUL							0047.6	0047.8	1	0047.6	0047.8	1	III
			BOUL							0052.2	0052.9	1	0052.2	0052.9	1	III
			CULG							0052.5		1				IIIB
			CULG				0102.5	0103		0102.5	0103					IIIG,W
			CULG				0108	0108.5	1	0108	0109	2				IIIG,V
			CULG				0123.5	0124								IIIG,W
			CULG				0128.5	0129	1	0128	0129.5	1				IIIG,U
			CULG							0143	0220					IIIN,W
			CULG				0201	0201.5		0201	0201.5					IIIG,W
			CULG				0202	0202.5	1							IIIG
			CULG							0243.5		1	0243.5		1	IIIB
			CULG							0726		1				IIIB
	1022	2254	SGMR													
	1300	2400	BOUL										1448.8	1449.1	1	III
	1317	2400	HARV				1738	1739	1	1738	1739	3				IIIG
			HARV				1744	1745	1	1744	1745	2				IIIG
			HARV							1831	1832	1				IIIGG
			HARV				1919	1920	1	1919	1920	1				IIIG
			HARV				1946	1947	1	1946	1947	2				IIIGG
			HARV				1950	1952	1	1950	1952	2				IIIGG
	2038	2400	CULG				2039.5	2349	1							N,FAST DRI
			HARV				2041	2045	3							IIIGG
			HARV				2114	2115	1	2114	2115	1				IIIG
			HARV							2117	2118	1				U
			CULG							2117.5		1				IIIB,U
			HARV				2148	2150	3							IIIGG
			HARV				2155	2156	2	2155	2156	2				IIIG
			CULG				2155	2155.5	1	2155	2155.5	1				IIIG
			CULG				2215	2219.5	1	2215.5	2219.5	1				IIIG
			HARV				2215	2219	3	2215	2220	2				IIIGG
			HARV				2311	2314	2	2312	2314	1				IIIGG
			HARV				2344	2348	2							IIIGG
24	0000	0130	BOUL													
	0000	0043	HARV				0021	0025	1							I
	0000	0739	CULG				0024.5	0641	1							N,FAST DRI
			CULG							0035	0640					IIIN,W
			CULG							0119	0121.5	1				IIIG,U
			CULG							0215	0600	1				IS
			CULG							0223		1				IIIB
			CULG							0230.5	0231.5	1				IIIG
			CULG							0248	0248.5	1				IIIG
			CULG							0304.5		1				IIIB
			CULG				0639.5	0641	1							IIIG
			CULG				0726.5	0739	1							IS
	0757	1705	MEIS							0758.5	0758.8	1				IIIG
	1038	2259	SGMR													
			MEIS							1156.9	1158.6	2				IIIG
	1318	2400	HARV				1551	1559	1	1551	1552	2				IIIGG
			MEIS							1551.3	1551.5	1				IIIB
			HARV				1703	1704	2	1703	1705	2				IIIG
	1300	2400	BOUL							1703.6	1703.7	1				III
	2042	2400	CULG							2233.5	2234	1				IIIG
			CULG							2244						IIIB,W
			BOUL										2244.1	2244.2	1	III

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MAR. 1973	TIMES OF OBSERVATION		STATION	EVENTS														SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND					
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.			
25	0000	0130	BOUL															
	0000	0043	HARV															
	0000	0738	CULG				0841.5	0842	1									FAST DRIFT
			CULG							0844	0146.5							IN,W
			CULG							0849.5	0850	1						IIIG
			CULG							0852		1						IIIB
			CULG							0126	0304.5							IIIN,W
			CULG				0455.5	0456	1									FAST DRIFT
	0605	1541	NEIS															
			CULG							0627.5	0628	1						IIIG
	1027	2257	SGMR															
	1615	1705	NEIS															
	1317	2400	HARV				1617	1618	2									I
			HARV							1653	1656	2	1654	1656	2			IIIGG,U
	1300	2400	BOUL							1653.8	1654.1	1	1653.8	1654.1	1			III
			BOUL							1655.5	1655.8	1	1655.5	1655.8	1			III
	2036	2400	CULG															
			BOUL							2147.8	2148.1	1	2147.8	2148.1	1			III
26	0000	0130	BOUL															
	0000	0043	HARV															
	0000	0738	CULG							0404	0950							IS,W
	0606	1706	NEIS															
			CULG							0734		1						IIIB
	1317	2400	HARV				1916	1920	3									IIIGG
	1300	2400	BOUL							1951.7	1952.4	1	1951.7	1952.4	1			III
			HARV							1952	2400	1						IN
			BOUL							2013.8	2400.8	2	2013.8	2400.8	2			CONT
			CULG							2037	2400							IIIN,W
	2037	2400	CULG							2037	2400	1						IS,CONT
			CULG				2042	2400										IS,W
			HARV				2155	2157	1									I
			CULG							2157		2						IIIB
			CULG							2206	2208	2						IIIG,V
			HARV							2206	2207	2						IIIG,V
			BOUL							2206.5	2207.5	2	2206.5	2207.5	2			IIIG
	1034	2258	SGMR										2207.1	2207.6	2			III
			BOUL							2217.8	2218.3	1						III
			CULG							2318.5	2319	1						IIIG
			HARV							2319	2320	2						IIIG
27	0000	0043	HARV							0000	0042	1						I
			CULG							0000	0722							IIIN,W
	0000	0737	CULG							0000	0445	1						IS,CONT
	0000	0130	BOUL							0000.0	0101.5	2	0000.0	0101.5	2	IV		
			CULG				0847	0848	1	0847	0848.5	1						IIIG
			CULG				0102.5		1	0102.5		1						IIIB
			BOUL							0102.5	0102.8	1	0102.5	0102.8	1			III
			CULG							0443		1						IIIB
			CULG							0445	0737	1						IS
			CULG				0620	0700										IS,W
			CULG							0621	0628							IIIGG,W
	1316	2400	HARV							1318	1526	1						IN
	1822	2259	SGMR										1442.8	1448.7	2			V
	1300	2400	BOUL							1442.9	1447.2	3	1442.9	1447.2	3			IIIGG
			HARV							1443	1445	3	1443	1445	3			IIIGG,V
			BOUL										1447.2	1455.7	1			V
	1455	1708	NEIS															
			BOUL							1518.1	1518.4	1	1518.1	1518.4	1			III
			BOUL										1630.8	1631.8	1			III
			BOUL							1632.8	1633.5	2	1632.8	1633.5	2			IIIG
	0552	1432	NEIS							1632.8	1633.8	1						IIIB
			SGMR										1632.8	1633.2	2			III
			HARV							1633		3	1633		3			IIIB,V
			HARV							1716	2228	1						I
			CULG							2037	2400	1						IIIN
	2037	2400	CULG							2037	2400	1						IS
			BOUL							2125.8	2129.8	3	2129.8	2129.8	3			IIIGG
			CULG							2126	2129	2						V
			HARV							2126	2128	3	2126	2128	3			IIIG,V
			SGMR										2126.2	2127.8	2			III
			BOUL										2129.2	2136.8	1			CONT
			CULG							2130	2136.5							IIIGG,W
			BOUL							2131.1	2131.3	1	2131.1	2131.3	1			III
			CULG							2315		2						IIIB
			BOUL							2315.1	2315.4	1						III
28	0000	0737	CULG							0000	0222	1						IS
	0000	0044	HARV							0000	0848	1						I
			CULG							0009	0737							IIIN,W
			CULG				0104.5		1	0104.5		1						RS
			CULG							0105.5	0107	2	0105.5	0106	1			IIIGG
	0000	0130	BOUL										0105.6	0106.5	1			IIIG
			CULG							0108	0115	2						III,H
			CULG							0108	0117	2				IV		
			CULG							0222	0737	2						IS,CONT
			CULG							0222	0737	1						IIIS
			CULG				0334.5	0335.5	1									FAST DRIFT
	0555	1706	NEIS															
	1317	2400	HARV							1317	1757	1						IN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1973

MAR. 1973	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
28	1300	2400	BOUL							1413.7	2400.0	1	1413.7	2400.0	1	CONT
			HARV				1751	1755	1							I
			HARV							1757	2400	1				I
			HARV							1759	1800	2	1759	1800	2	IIIG
	1022	2301	SGMR										1759.3	1800.1	1	III
			HARV				1802	1803	2							IIIGG
			BOUL							1806.8	1808.8	2	1806.8	1808.8	2	IIIG
			HARV				1807	1808	1	1807	1809	2	1807	1808	2	IIIGG
			SGMR										1807.0	1808.7	2	III
			HARV				1845	2100	1							IN
	2037	2400	CULG							2037	2230	1				IS,CONT
			CULG							2230	2400	1				IS
			CULG							2338		1				IIIB
			HARV				2347	2348	3							IIIG
			CULG							2349.5	2350.5	1				IIIG,V
			BOUL							2349.8	2351.1	2	2349.8	2351.1	2	III
			CULG							2352	2353	1				IIIG
29	0000	0737	CULG							0000	0217	1				IS
	0000	0045	HARV							0000	0045	1				I
	0000	0130	BOUL										0000.0	0025.0	1	CONT
			CULG							0119	0120	1				IIIG,U
			CULG				0228.5	0229	1	0228	0229	2				IIIG
			CULG							0243		1				IIIG
			CULG				0414.5	0415.5	1	0414.5	0415.5	1				IIIG
	0550	1236	MEIS							0855.4	0855.5	1				IIIB
			MEIS							0924.6	0924.8	1				IIIB
			MEIS							0932.3	0933.3	1				IIIG
			MEIS							0959.8	1001.3	2				IIIG
			MEIS							1226.4	1226.8	2				IIIG
	1044	2259	SGMR										1226.7	1229.9	2	IIIG
			MEIS							1228.8	1229.6	2				IIIG
	1317	2400	HARV							1402	1404	3	1403	1404	2	IIIGG
	1247	1705	MEIS							1402.4	1403.6	2				IIIG
			SGMR										1402.6	1404.0	2	III
	1300	2400	BOUL							1402.6	1404.3	2	1402.0	1404.3	2	IIIG
			HARV							1424	1425	2	1424	1425	2	IIIG,U
			MEIS							1424.2	1424.6	1				IIIG
			BOUL							1424.2	1425.0	2	1424.2	1425.0	2	IIIG
			SGMR										1424.3	1425.0	2	III
			BOUL							1503.3	1515.0	1	1503.3	1515.0	1	IIIG
			MEIS							1503.7	1504.2	1				IIIG
			HARV							1504	1507	2				IIIGG
			SGMR										1504.2	1507.0	1	IIIG
			MEIS							1506.4	1506.8	1				IIIG
			BOUL							1506.4	1507.0	1	1506.4	1507.0	1	IIIG
			HARV				1659	1700	1	1659	1700	1				IIIG
			BOUL							1700.5	1700.9	1	1700.5	1700.9	1	III
	2037	2400	CULG							2119.5	2323					IIIN,W
			CULG							2152	2240					IS,W
			BOUL							2210.7	2210.7	1	2210.7	2210.7	1	III
			HARV				2237	2238	1							IIIG
			CULG							2250	2316	2				II
			HARV							2252	2306	2	2256	2304	2	II
			BOUL							2252.6	2259.4	2	2252.6	2259.4	2	IIF
			BOUL							2253.7	2259.5	2				IIM
			BOUL							2255.2	2259.2	2	2255.2	2259.2	2	III
			BOUL							2259.0	2400.0	1	2259.0	2400.0	1	IV
			BOUL							2300.8	2307.0	2				IIM
			BOUL										2300.2	2307.6	2	IIF
			BOUL										2301.0	2311.0	2	II
			BOUL							2302.3	2303.0	2	2302.3	2303.0	2	III
			BOUL										2307.0	2312.2	2	II
			BOUL							2312.2	2313.2	2	2312.2	2313.2	2	III
			BOUL							2312.6	2317.4	2	2312.6	2317.4	2	II
			BOUL										2318.5	2319.5	2	III
			BOUL										2322.1	2324.2	2	III
30	0000	0046	HARV													
	0000	0130	BOUL										0000.0	0050.0	1	IV
			CULG				0052.5		1							IIIB
			CULG				0142.5									IIIB,W
	0000	0732	CULG				0200	0348		0200	0325					IS,W
			CULG				0414	0414.5	1	0414	0414.5	2				IIIG
			CULG							0439.5		1				IIIB
			CULG				0523.5	0524.5	1	0523.5	0524.5	2				IIIG
			CULG				0534	0534.5	1	0534	0535	1				IIIG
	0550	1713	MEIS							0630.8	0631.1	1				IIIG
			CULG				0631		1	0630.5	0631	1				IIIG
			CULG				0642.5	0644	1	0642.5	0644	2				IIIG,U
			MEIS							0642.5	0643.2	2				IIIG
			CULG				0657	0657.5	1	0657	0657.5	1				IIIG
			MEIS							0657.8	0658.2	1				IIIG
			CULG				0711.5	0712.5	1	0711.5	0712.5	1				IIIG
			MEIS							0711.6	0712.5	2				IIIG
			CULG				0713.5	0716	1							IIIG
			MEIS							0737.7	0739.0	2				IIIG
			MEIS							1058.6	1059.5	1				IIIG
			MEIS							1136.5	1136.8	1				IIIG
			MEIS				1143.7	1143.8	1							UNCL

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1973

MAR. 1973	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
30			WEIS							1144.8	1148.9	1					IIIG
			WEIS							1203.4	1203.5	1					IIIB
			WEIS							1221.7	1222.3	1					IIIG
			WEIS							1242.0	1224.1	1					IIIG
			WEIS							1254.6	1254.9	1					IIIG
	1317	2400	HARV							1327	1328	1					IIIG
	1230	2400	BOUL							1417.7	1417.8	1					III
			HARV				1439	1440	1	1439	1440	3					IIIG
			WEIS							1439.0	1439.4	1					IIIG
			BOUL							1439.3	1439.5	1					III
			BOUL										1441.3	1441.5	1		III
			HARV							1520	1521	2					IIIG,U
			WEIS							1520.5	1520.7	1					IIIG
			BOUL							1520.8	1521.8	2	1520.8	1521.0	2		III
			BOUL							1525.5	1526.4	2	1525.5	1526.4	2		III
			WEIS							1525.5	1625.9	1					IIIG
	1022	2309	SGMR										1525.8	1527.4	2		IIIG
			BOUL							1526.9	1527.5	2	1526.9	1527.5	2		III
			HARV				1527	1530	3	1525	1528	3					IIIGG
			HARV							1533	1536	2					IIIGG
			WEIS							1533.1	1535.6	1					IIIG
			BOUL							1534.2	1536.6	1	1534.2	1536.6	1		IIIG
			WEIS							1611.6	1614.7	2					IIIGG
			HARV				1612	1615	3	1611	1615	3					IIIGG
			BOUL							1612.0	1612.2	1					IIIG
			BOUL							1613.8	1614.5	1	1613.8	1614.5	1		IIIG
			WEIS							1625.8	1627.8	2					IIIGG
			BOUL							1720.8	1721.0	1	1720.8	1721.1	1		III
			HARV							1725	1726	2					IIIG
			BOUL							1726.2	1726.4	1	1726.2	1726.4	1		III
			HARV							1729	1730	1					IIIG
			HARV				1817	1818	1	1817	1819	2					IIIGG
			BOUL							1817.7	1818.3	1	1817.7	1818.3	1		III
			HARV				1825		2	1825		3					IIIG
			BOUL							1825.2	1825.4	1					III
			BOUL										1928.5	1928.8	1		III
			HARV				2011	2012	1	2010	2012	2					IIIGG
			BOUL							2011.7	2012.0	1					IIIG
			BOUL										2028.8	2029.0	1		III
	2036	2400	CULG							2036	2329						IIIN,W
			CULG				2059	2059.5	1	2059	2059.5	1					IIIG
			HARV							2059		3					IIIG
			BOUL							2116.8	2117.1	1	2116.8	2117.1	1		III
			BOUL										2147.5	2148.3	1		IIIG
			HARV							2156	2157	2					IIIG,U
			CULG							2156	2157	1					IIIG,U
			BOUL										2209.8	2338.0	1		CONT
			BOUL							2209.8	2213.4	2	2209.8	2213.4	2		IIIGG
			CULG							2212	2212.5	1					IIIG
			CULG							2234	2235	1					IIIG
			BOUL							2234.6	2235.1	1	2234.6	2235.1	1		III
			CULG				2244.5	2245	1								IIIG
			HARV				2245		2	2245		3					IIIG
			BOUL										2253.5	2253.9	1		III
			BOUL							2328.7	2329.4	1	2328.7	2329.4	1		III
31	0000	0046	HARV														
	0000	0736	CULG							0010.5	0641.5						IIIN,W
	0000	0130	BOUL							0010.3	0019.0	1	0010.3	0019.0	1		III
			CULG							0035	0035.5	1					IIIG,U
			CULG				0205	0305									IS,W
			CULG				0314.5		1	0314.5		1					IIIB,RS
			CULG				0319	0319.5	1	0319	0319.5	2					IIIG
			CULG							0355	0357	2					IIIG,U
			CULG				0359	0400	1	0359	0400	2					IIIG
	0545	1829	WEIS														
			CULG							0547.5		1					IIIB
			CULG							0600	0602	1					IIIG
			CULG							0619		1					IIIB
			CULG				0735	0735.5	1								IIIG
	1230	1600	BOUL										1514.8	1515.9	2		III
	1020	2304	SGMR										1515.3	1516.1	1		III
	1317	2400	HARV				1635	1636	1	1635	1637	3	1635	1637	3		IIIG,V
	1240	1713	WEIS							1635.2	1635.8	2					IIIG
			SGMR										1635.5	1637.1	2		IIIG
			BOUL							1635.6	1636.0	2	1635.6	1636.0	2		III
			HARV							1859	2044	1					I
			HARV				1941	2006	1								IN
			CULG				2036	2100									IS,W
	2036	2400	CULG							2036	2400						IIIN,W
			CULG							2043.5	2044	1					IIIG
			CULG							2051	2051.5	1					IIIG
	1900	2400	BOUL							2051.6	2056.9	2	2051.6	2056.9	2		IIIG
			CULG							2119.5	2120.5	1					IIIG
			BOUL										2155.8	2400.0	1		CONT
			CULG							2208	2209	1					IIIG
			CULG							2214.5	2215.5	1					IIIG
			HARV				2239	2358	1	2237	2400	1					IN
			CULG							2245	2400	1					IS

SELECTED SOLAR EVENTS

MARCH 1973

Culgoora

UT Date 1973 March	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. (R_o)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
1	-	0100	80	1.0	330	r	1-2	IVS,I	Flare at 2200 UT Feb 28 before start of observ.
	(whole day)		160	0.3	340	R	1-2		
4	0351	0352	80	1.2	250	0	3	IIIB	
			160	1.1	250				
11	0221	0222	80	1.3	320	0	3	IIIG	*
			160	1.1	320				
12	0204	0206	80	1.0	30	0	3	IIIG	*
	0512	0515	160	0.8	40				
13	0441	0444	80	0.8	20	0	3	IIIGG	*
			160	0.6	30				
14	0019	0020	80	1.2	300	0	2	IIIG	
			160	1.1	330				
20	0116	0118	80	1.2	20	0	2	IIIG	
			160	1.1	30				
	0117	0118	160	1.1	210	0	3	IIIG	
	2256	2259	80	1.2	30	0	1	IIIGG,V	
			160	0.9	30	0	2		
23	0108	0110	80	1.3	310	0	3	III-V	*
			160	0.8	310	0			
24	0119	0122	80	1.0	290	0	2	IIIG,U	
			160	0.8	270				
28	0105	0108	80	0	--	0	2	IIIGG	No 160 MHz observ.
	0110	0130	160	0.5	330	R	2	IVS	Complex source structure
29	0228	0229	80	1.3	60	0	3	IIIG	
			160	1.1	40				
31	0359	0400	80	1.2	30	0	1	IIIG	*
			160	0.8	40	0	3		

Days without Heliograph observations: ..7.....

* Other type III observed at same positions during day.

COSMIC RAY INDICES
(Neutron Monitors)
MARCH 1973

Mar. 1973	CHURCHILL DAILY AVERAGE COUNTS PER HOUR	DEEP RIVER DAILY AVERAGE COUNTS PER HOUR	CALGARY DAILY AVERAGE COUNTS PER HOUR	SULPHUR MT. DAILY AVERAGE COUNTS PER HOUR	CLIMAX DAILY AVERAGE COUNTS PER HOUR	DALLAS DAILY AVERAGE COUNTS PER HOUR
1	data not available at time of publication	data not available at time of publication	11757.7	8815.0	data not available at time of publication	6309.3
2			11724.6	8772.6		6304.0
3			11761.7	8791.5		6308.9
4			11793.1	8835.2		6329.5
5			11865.4	8907.6		6349.4
6			11844.3	8877.6		6347.5
7			11779.7	8832.9		6309.5
8			11763.9	8820.7		6286.1
9			11775.0	8845.9		6289.1
10			11744.2	8818.2		6263.5
11			11676.5	8727.4		6269.3
12			11739.7	8714.5		6273.4
13			11738.1	8734.6		6267.8
14			11782.0(21)	8750.0		6294.5
15			11837.4(8)	8776.5		6309.6
16			11779.4	8745.6		6299.8
17			11666.1	8681.0		6276.8
18			11764.0	8731.5		6317.3
19			11637.6	8639.2		6284.3
20			11587.2	8624.4		6263.0
21			11548.5	8595.0		6242.3
22			11587.6	8599.4		6241.1
23			11626.8	8589.4		6243.6
24			11620.1	8598.4		6249.3
25			11620.4	8614.6		6270.3
26			11605.3	8607.0		6264.3
27			11634.6	8588.4		6257.5
28			11646.2	8576.1		6253.4
29			11701.8	8629.0		6291.7
30			11712.8	8661.9		6305.2
31			11744.8	8688.9		6346.9

( ) Number of hours for which data are available if less than 24 (or number of section hours if less than 40 for Climax).

Churchill and Dallas Super Neutron Monitors, Scaling Factors 120.

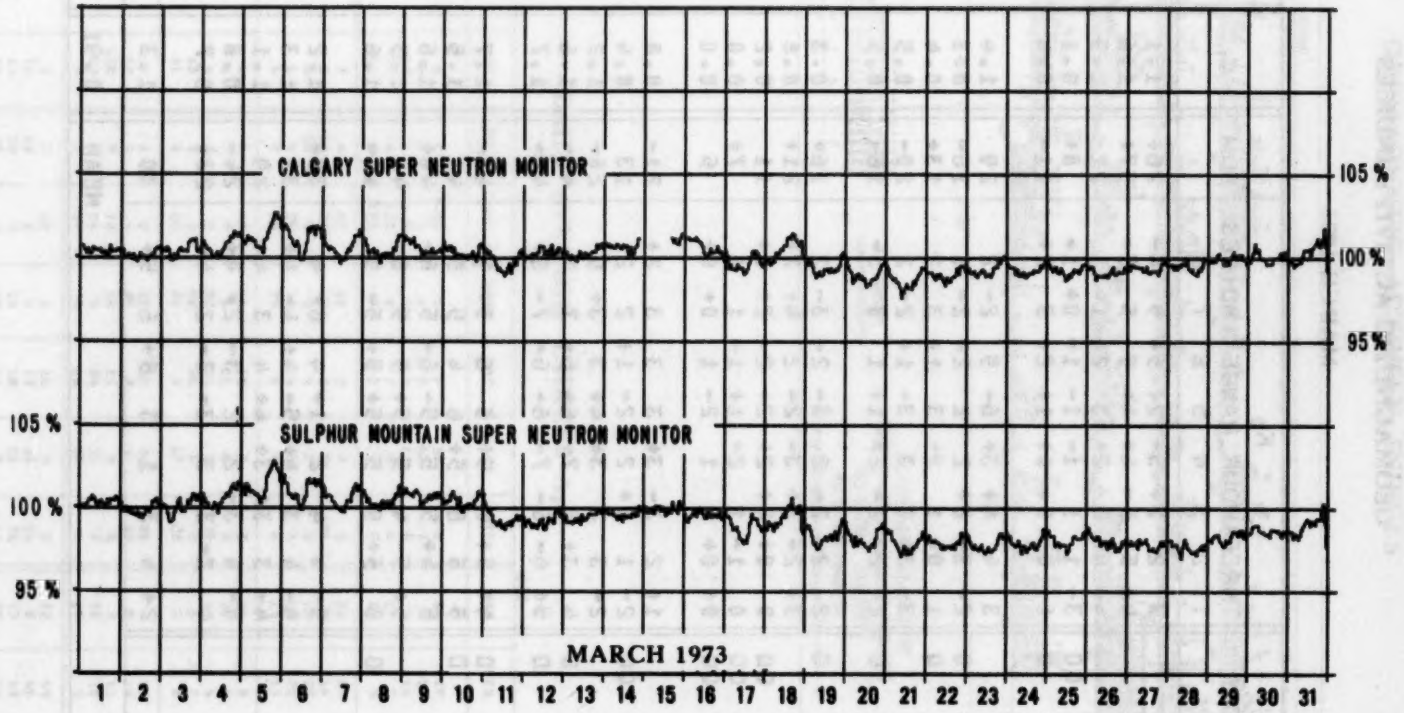
Deep River Super Neutron Monitor, Scaling Factor 300.

Calgary and Sulphur Mountain Super Neutron Monitors, Scaling Factors 100.

Climax IGC Station B305, Scaling Factor 100.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

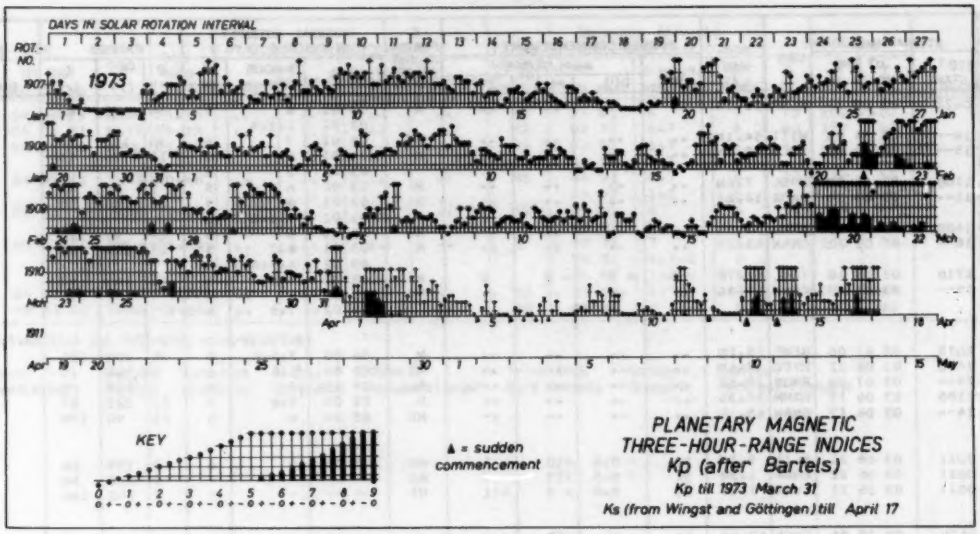


GEOMAGNETIC ACTIVITY INDICES

MARCH 1973

DAY		K_p THREE-HOUR RANGE INDICES 1	2	3	4	5	6	7	8	SUM	C_i	C_p	A_p
1		3	2	2+	3-	2+	5+	5	4-	26+	1.1	1.1	22
2		4+	5	5-	4+	4+	5	5	5-	37+	1.6	1.4	40
3		4+	4-	3	2+	3	2+	1+	2	22	0.5	0.8	14
4	QQ	3-	1	1	1-	1-	1-	0+	1+	8+	0.1	0.2	4
5	Q	1	0	0+	0+	1+	2+	3	2+	11-	0.4	0.3	6
6		3	4	4+	3+	6-	5	2-	2	29	1.4	1.2	28
7	Q	2-	3-	2+	2	2	2+	2-	1	16-	0.3	0.4	8
8	Q	1	0+	1	2-	3	1+	3	2	13+	0.4	0.4	7
9		3-	3+	3	3	3-	1+	2-	2	20-	0.5	0.6	11
10	Q	2	2-	2-	2+	1+	1	3	3-	16-	0.5	0.4	8
11	Q	2	2-	2-	2	3-	2-	3-	2	16+	0.3	0.4	8
12		3+	2-	3+	3-	2-	2	4+	2+	21+	0.8	0.8	14
13	QQ	0	0+	2+	2+	2-	2-	2+	0+	11	0.2	0.2	5
14	QQ	0	1-	1	2-	1+	1-	1	1	7+	0.0	0.1	4
15	QQ	0+	0+	0	1	2-	1	0+	0+	5	0.0	0.0	3
16		1+	2	3-	3+	3	3	3	2+	21-	0.8	0.7	12
17	QQ	2-	1	1+	2	2-	1+	2	2	13	0.4	0.3	6
18		2-	3	2	3+	4+	3	3+	5	26-	1.2	1.0	20
19	D	4	3+	5	7-	6+	6+	7	7	46-	1.6	1.8	82
20	D	5+	6-	6-	7-	6-	6-	7-	6+	48-	1.7	1.8	80
21	D	4+	5+	6	5+	5	6	5+	5+	43-	1.7	1.7	58
22	D	5	5	6-	5+	6	4	5	5	41	1.5	1.6	53
23		5	4+	5	5	5-	6-	5	6-	40+	1.6	1.6	50
24		5+	5-	4	5	5+	5	5	6-	40	1.5	1.6	49
25	D	5	5+	5	5	5+	5+	5-	5	41-	1.6	1.6	50
26		5-	4	4	2	1+	4	6+	4	30+	1.2	1.3	32
27		4-	4	3	4+	5-	4+	4-	4+	32	1.3	1.2	28
28		4-	3	3+	3+	4+	4	3	4+	29	1.1	1.1	22
29		4-	4	3-	2	2	3-	2+	4+	24-	0.8	0.9	16
30		4	2+	3	3	3-	3-	2	4-	23+	0.7	0.8	15
31		2+	4	3	1	3	5+	6	5+	30	1.3	1.3	33
										MEAN	0.91	0.92	25

GEOMAGNETIC ACTIVITY INDICES


DAYS IN SOLAR ROTATION INTERVAL
ROT.-NO.
1973
KEY
0 1 2 3 4 5 6 7 8 9
0+ - 0+ - 0+ - 0+ - 0+ - 0+ - 0+ - 0+ - 0+ - 0
▲ = sudden commencement
PLANETARY MAGNETIC
THREE-HOUR-RANGE INDICES
Kp (after Bartels)
Kp till 1973 March 31
Ks (from Wingst and Göttingen) till April 17

DAILY AVERAGE INDICES Ap

	1972									1973		
DAY	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
1	17	18	6	5	18	5	7	98	6	11	17	22
2	11	18	6	7	5	6	5	42	5	2	14	48
3	4	7	12	7	5	5	4	13	6	2	16	14
4	17	5	13	4	132	6	7	6	4	11	7	4
5	17	6	11	3	182	5	2	3	2	21	9	6
6	8	9	7	4	87	10	2	7	3	20	15	28
7	8	3	8	18	28	5	8	7	18	8	14	6
8	6	4	6	18	9	9	4	7	6	15	25	7
9	3	14	4	6	74	8	4	7	4	16	21	11
10	5	9	4	7	18	15	6	4	2	28	11	8
11	6	7	4	6	17	11	19	7	3	24	8	8
12	18	9	3	7	7	5	21	6	8	25	9	14
13	12	8	4	3	5	53	21	4	38	16	4	5
14	7	7	10	3	9	54	26	4	9	8	7	4
15	6	38	11	6	18	24	8	17	29	9	8	3
16	6	18	8	8	6	19	12	31	33	8	18	12
17	6	9	62	8	6	26	2	12	13	5	16	6
18	24	18	126	5	13	14	11	9	8	3	11	28
19	18	4	19	8	14	6	34	11	7	18	18	82
20	8	4	9	5	15	4	14	27	4	29	9	88
21	19	4	5	3	15	2	16	9	2	22	49	58
22	18	5	12	18	8	4	13	13	14	5	46	53
23	8	7	11	18	3	13	18	11	38	13	48	58
24	5	5	14	17	2	16	11	5	13	22	54	49
25	3	5	6	33	5	6	6	8	4	28	31	58
26	3	8	18	17	18	7	8	14	5	28	34	32
27	7	8	17	9	25	8	7	11	2	33	44	28
28	22	22	13	5	8	8	11	12	4	33	28	22
29	42	18	11	4	8	25	21	9	15	22		16
30	17	14	3	4	6	8	28	4	19	15		15
31		12		6	7		29		13	6		33
MEAN	11	18	14	8	24	13	12	14	18	16	28	29

PRINCIPAL MAGNETIC STORMS

MARCH 1973

DATE 1973 MO DA	STORM TIME UT START	STORM TIME UT END MO DA HR	OBS	GEO-MAG LAT.	SUDDEN COMMENCEMENT TYPE	SUDDEN COMMENCEMENT AMPLITUDES D(')	H(γ)	Z(γ)	C FIGURE DEGREE OF ACTIVITY	MAXIMAL ACTIVITY ON K-SCALE 0 TO 9 MO DA	3-HOUR PERIOD	K INDEX	RANGES D (')	H (γ)	Z (γ)	STORM NUMBERS
03 01	0622	03 03 15	NEWP	55.1N	..	..	..	..	M	03 01	6	5	34	139	102	12
										03 02	2,3,4					12
	16---	03 03 05	WITT	54.1N	..	..	..	..	MS	03 02	7	6	30	180	70	12
	15---	03 03 08	TUCS	40.4N	..	..	..	..	M	03 01	6	5	10	70	15	12
										03 02	2	5				12
	1100	03 02 23	HYDE	7.6N	..	..	..	..	M	03 02	6	5	3	85	11	12
	11---	03 03 14	PMOR	18.6S	..	..	..	..	M	03 01	6	5	7	90	50	12
										03 02	4,5,6	5				12
	1600	03 03 03	HRMN	33.3S	..	..	..	..	MS	03 01	6	6	19	94	119	12
	16---	03 02 22	GNAN	43.2S	..	..	..	..	M	03 01	6,7	5	13	110	100	12
										03 02	4,5,6,7					12
	0710	03 03 18	TOOL	46.7S	SC	+ 1	+ 9	0	M	03 02	4,5	5	22	145	50	12
	16---	03 03 03	KGLN	57.3S	..	..	..	..	MS	03 01	6	6	---	---	---	12
										03 02	7,8	6				12
03 05	2018	03 07 00	NEWP	55.1N	..	..	..	..	M	03 06	3,5,6	5	36	108	121	13
	1430	03 06 22	HYDE	7.6N	..	..	..	..	MS	03 06	5,6	6	3	186	13	13
	14---	03 07 00	PMOR	18.6S	..	..	..	..	M	03 06	3	5	7	140	70	13
	2100	03 06 17	HRMN	33.3S	..	..	..	..	M	03 06	5,6	5	27	122	89	13
	14---	03 06 17	GNAN	43.2S	..	..	..	..	MS	03 06	6	6	25	90	170	13
03 06	0011	03 06 22	ALIB	9.5N	SC	- 0.4	+10	- 5	MS	03 06	5	6	3	179	20	13
	0011	03 06 22	ANNA	1.5N	SC	- 0.5	+13	+ 7	MS	--- ---	-	-	3	228	56	13
	0011	03 06 22	TVAN	1.1S	SC	0.0	+ 9	+11	MS	--- ---	-	-	2	242	146	13
03 16	0626	03 29 06	TUCS	40.4N	SC	- 1	+30	+ 2	MS	03 19	5	6	20	170	30	14
										03 20	4	6				14
										03 21	3	6				14
	0625	03 16 23	ALIB	9.5N	SC *	- 0.4	+31	- 9	M	03 16	3	5	4	124	24	14
	0625	03 17 13	HYDE	7.6N	SC	- 0.7	+34	- 3	M	03 16	3,4,5,7	4	4	130	27	14
	0625	03 17 01	GUAM	4.0N	SC *	---	25	06	M	03 16	4	5	0	90	10	14
	0625	03 16 23	ANNA	1.5N	SC *	- 1.0	+53	+18	M	--- ---	-	-	3	187	50	14
	0625	03 16 23	TVAN	1.1S	SC *	+ 0.1	+53	+58	M	--- ---	-	-	1	213	121	14
	0625	03 17 13	PMOR	18.6S	SC	+ 0.5	+28	+24	M	03 16	4	5	6	100	50	14
	0625	03 17 00	GNAN	43.2S	SC	+ 1	+19 *	+ 1	M	03 16	5	5	13	60	90	14
	0626	04 04 18	TOOL	46.7S	SC *	+ 1	+40	+ 7	MS	03 19	4	7	55	320	175	14
03 18	11---	03 28 14	SITK	60.0N	..	..	..	..	S	03 19	4	9	180	1350	640	15
										03 20	4	9				15
	11---	03 26 12	NEWP	55.1N	..	..	..	..	S	03 19	4	8	57	514	471	15
	21---	03 26 03	WITT	54.1N	..	..	..	..	MS	03 19	7,8	7	50	310	150	15
										03 20	7	7				15
	12---	03 29 05	FRED	49.6N	..	..	..	..	MS	03 21	7	6	31	183	117	15
										03 25	6	6				15
	11---	03 29 06	BOUL	49.0N	..	..	..	..	MS	03 20	4	6	41	195	115	15
										03 21	3,7	6				15
										03 25	2	6				15
	1630	03 20 04	SJUA	29.9N	..	..	..	..	MS	03 18	8	6	10	147	49	15
	11---	03 26 11	HONO	21.1N	..	..	..	..	M	03 18	8	5	10	125	41	15
										03 19	4,5					15
										03 20	4					15
										03 21	3					15
										03 23	3,4,8					15
										03 24	1					15
	0735	03 19 24	HYDE	7.6N	..	..	..	..	MS	03 19	5	7	5	214	23	15
	1128	03 26 11	GUAM	4.0N	..	..	..	..	MS	03 20	4	6	0	130	20	15
	07---	03 26 11	PMOR	18.6S	..	..	..	..	MS	03 19	4	6	8	160	90	15
										03 20	4	6				15
										03 22	5	6				15
	11---	03 26 11	GNAN	43.2S	..	..	..	..	S	03 19	4	8	45	150	290	15
	11---	03 26 ---	KGLN	57.3S	..	..	..	..	S	03 19	7,8	8	---	---	---	15
03 19	03---	03 24 01	ALIB	9.5N	..	..	..	..	MS	03 19	4,5,7	6	5	206	37	15
	03---	03 24 01	ANNA	1.5N	..	..	..	..	MS	--- ---	-	-	5	239	89	15
	03---	03 24 01	TVAN	1.1S	..	..	..	..	MS	--- ---	-	-	3	270	156	15
	0600	03 26 03	HRMN	33.3S	..	..	..	..	MS	03 19	4,5,7	6	31	154	111	15
03 20	0900	03 26 04	SJUA	29.9N	..	..	..	..	M	03 20	1,8	5	09	116	49	15
										03 25	1,8					15
	0300	03 24 02	HYDE	7.6N	..	..	..	..	MS	03 20	4,5	6	5	139	28	15
03 24	0400	03 26 01	HYDE	7.6N	..	..	..	..	M	03 24	5,6	5	4	93	23	15
03 26	2032	03 29 06	NEWP	55.1N	..	..	..	..	M	03 27	2	5	30	94	127	16
										03 29	2					16
	17---	03 29 05	WITT	54.1N	..	..	..	..	MS	03 26	7	6	35	200	50	16
	1600	03 29 06	HRMN	33.3S	..	..	..	..	M	03 26	7	5				16
										03 28	8	5	18	75	69	16
03 27	09---	03 29 07	GNAN	43.2S	..	..	..	..	MS	03 27	5	6	14	70	80	16
03 31	03---	04 03 21	SITK	60.0N	..	..	..	..	S	04 01	6	9	230	1740	1340	17

PRINCIPAL MAGNETIC STORMS

MARCH 1973

DATE 1973 MO. DA.	STORM TIME UT START	STORM TIME UT END MO. DA. HR	OBS.	GEO-MAG LAT.	SUDDEN COMMENCEMENT TYPE	AMPLITUDES D(°)	AMPLITUDES H(γ)	AMPLITUDES Z(γ)	C FIGURE DEGREE OF ACTIVITY	MAXIMAL ACTIVITY ON K-SCALE 0 TO 9 MO. DA.	3-HOUR PERIOD	K INDEX	RANGES D (°)	RANGES H (γ)	RANGES Z (γ)	STORM NUMBERS
03 31	1345	04 03 21	NEWP	55.1N	..	..	..	..	MS	04 01	6	7	73	500	510	17
	16--	04 01 03	WITT	54.1N	..	..	..	..	MS	03 31	6,7	6	40	190	60	17
	13--	04 04 18	BOUL	49.0N	..	..	..	..	MS	04 01	6,7	6	35	255	190	17
										04 02	1,2	6				17
	17--	04 03 11	TUCS	40.4N	..	..	..	..	MS	04 01	6,7	6	22	210	50	17
										04 02	1,2	6				17
	12--	04 03 10	HONO	21.1N	..	..	..	..	MS	04 01	6	6	11	150	47	17
										04 02	1					17
	13--	04 03 21	PHOR	18.6S	..	..	..	..	M	03 31	7	5	6	150	70	17
										04 01	6,7,8	5				17
										04 02	1,4,5	5				17
	17--	04 02 22	HRMN	33.3S	..	..	..	..	MS	04 01	6,7	7	48	258	288	17
	13--	04 01 02	GNAN	43.2S	..	..	..	..	MS	03 31	7	6	21	80	90	17

Reports were received from the following observatories:

Sitka	Newport	Boulder	San Juan	Alibag	Guam	Trivandrum	Hermanus	Toolangi
Witteveen	Fredericksburg	Tucson	Honolulu	Hyderabad	Annamalainagar	Port Moresby	Gnangara	Port-aux-Francais

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

MARCH 1973

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS (by Dr. A. Romana)

The meaning of the station symbols is given in the IAGA-Bulletins nr. 12 and 32. Times of ssc and si are mean values. If given by ten or more stations they are underlined.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

16 0625 A: VI KS PM HU TN LM AM; B: SO MA CI PP GN DU; C: EB TL KA SS (si: A: SI FU IK FR; B: WN OT)

Sudden impulses found in the magnetograms (si)

02 1202 B: DO WN FU HB EB TL?; C: WI (ssc: B: MA LG CI; C: NI)

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

01	1119 - 1200	WN? HB
	0912 - 0925	NI
14	1557 - 1610	LG
25	0052 - 0057	SS
25	0918 - 0923	EB

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

MARCH 1973

North Atlantic

MAR. 1973	WHOLE DAY INDICES NORTH ATLANTIC	ADVANCE FORECASTS (JC-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC 6-HOURLY QUALITY FIGURES 00 TO 06	06 TO 12	12 TO 18	18 TO 24	SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF 02	08	14	20	GEOMAGNETIC INDICES K_{FR} HALF DAY (1)	(2)	A_{FR} OBSERVED
01	5+	5	5o	4+	6o	6+	5	5	6	5	3	3	15
02	5-	5	5-	4o	5+	5+	5	5	5	5	(4)	(4)	27
03	5o	6	4o	4-	6o	6o	4	4	6	5	(4)	2	16
04	6o	6	6o	6-	7-	6+	5	5	6	6	1	0	2
05	7-	6	7-	6+	7-	7o	6	5	6	6	0	1	2
06	6+	6	7-	6o	6o	6+	6	6	6	5	(4)	(4)	24
07	6+	6	6o	6-	7-	7o	5	5	6	6	2	2	8
08	6+	6	7-	5+	7o	6+	6	6	6	6	1	2	6
09	6o	6	6-	5+	6+	7-	6	6	6	6	3	2	9
10	7-	6	7-	6+	7o	7o	6	6	6	6	2	2	6
11	6+	6	7-	6+	7-	6-	6	6	6	6	2	2	8
12	6o	7	6o	5-	7-	6+	6	6	6	6	3	2	10
13	6+	7	7-	6-	7-	7o	6	6	6	6	2	2	6
14	6+	7	7-	6+	6o	7-	6	6	6	7	1	1	2
15	7-	6	7-	7-	7-	7-	7	6	7	7	0	1	2
16	7-	6	7-	7-	7-	7-	7	6	6	6	3	3	11
17	7-	6	7-	7-	7-	6o	6	6	6	6	2	2	6
18	6o	6	7-	6o	6o	6o	6	6	6	5	3	(4)	19
19	6-	6	6-	6+	6-	5+	5	5	5	4	(4)	(5)	37
20	4o	5	4-	3+	4+	5o	3	4	5	4	(5)	(5)	43
21	4+	5	4o	4o	4+	5+	4	3	4	4	(5)	(4)	42
22	4+	4	4o	4-	5-	4+	4	4	4	5	(5)	(4)	33
23	4+	4	4o	4o	4o	4+	4	4	5	5	(4)	(4)	32
24	4-	4	4o	2+	4+	4o	3	3	5	5	(4)	(4)	27
25	3o	4	3+	2-	4-	4-	4	4	5	4	(5)	(4)	43
26	4o	4	4-	4-	5o	4o	4	4	5	5	(4)	3	19
27	4+	5	4+	4-	4+	5-	5	5	5	5	(4)	3	21
28	5-	5	4-	4o	5+	6+	4	5	5	5	3	3	16
29	5+	5	5+	4+	6-	6o	5	5	6	6	3	2	13
30	6-	5	6-	4+	6o	6-	6	6	6	6	3	2	11
31	6-	6	6-	6-	6+	6-	6	6	6	6	2	(4)	19

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

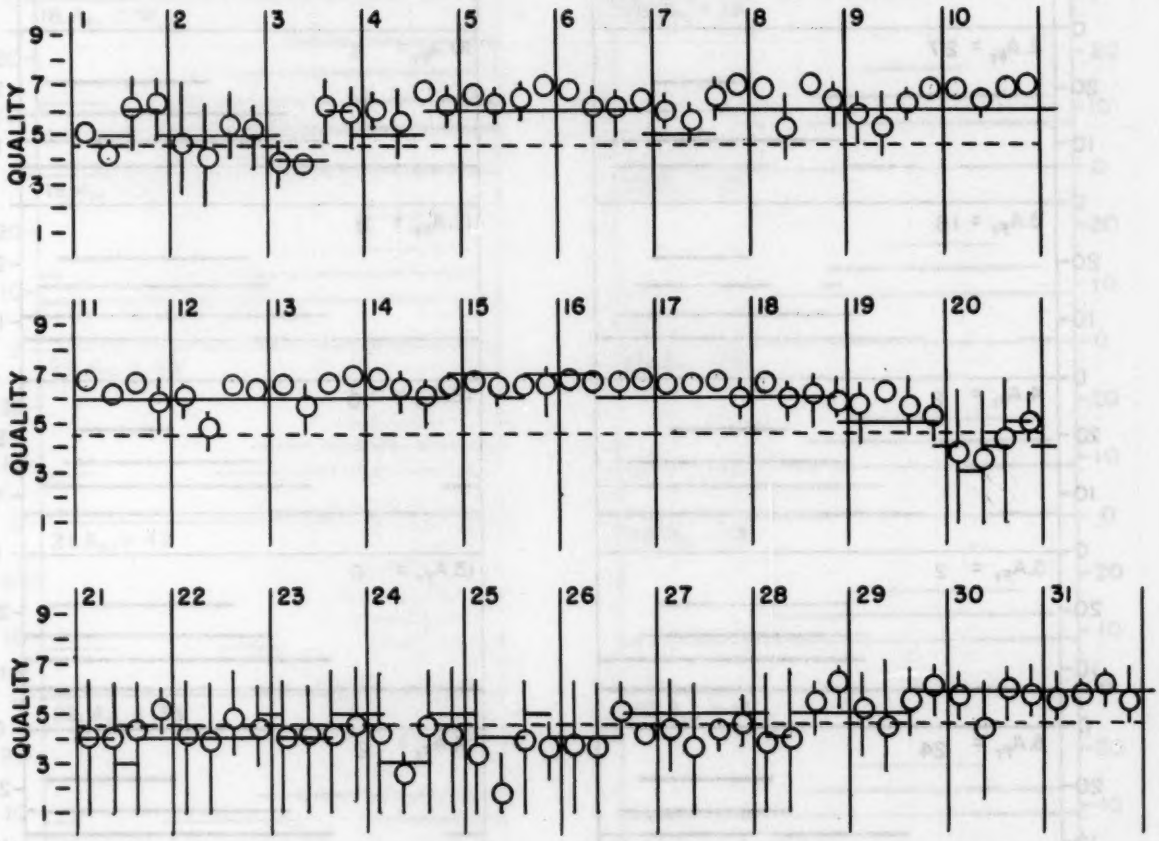
MARCH 1973

North Atlantic

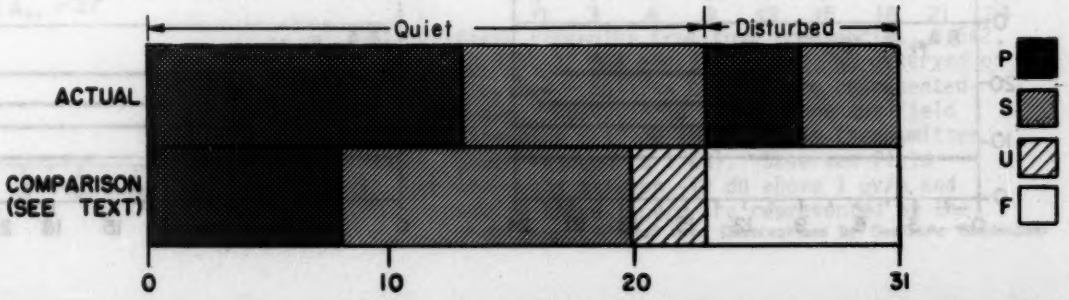
– Short term forecast
o Quality figure

1 range of reports

Day

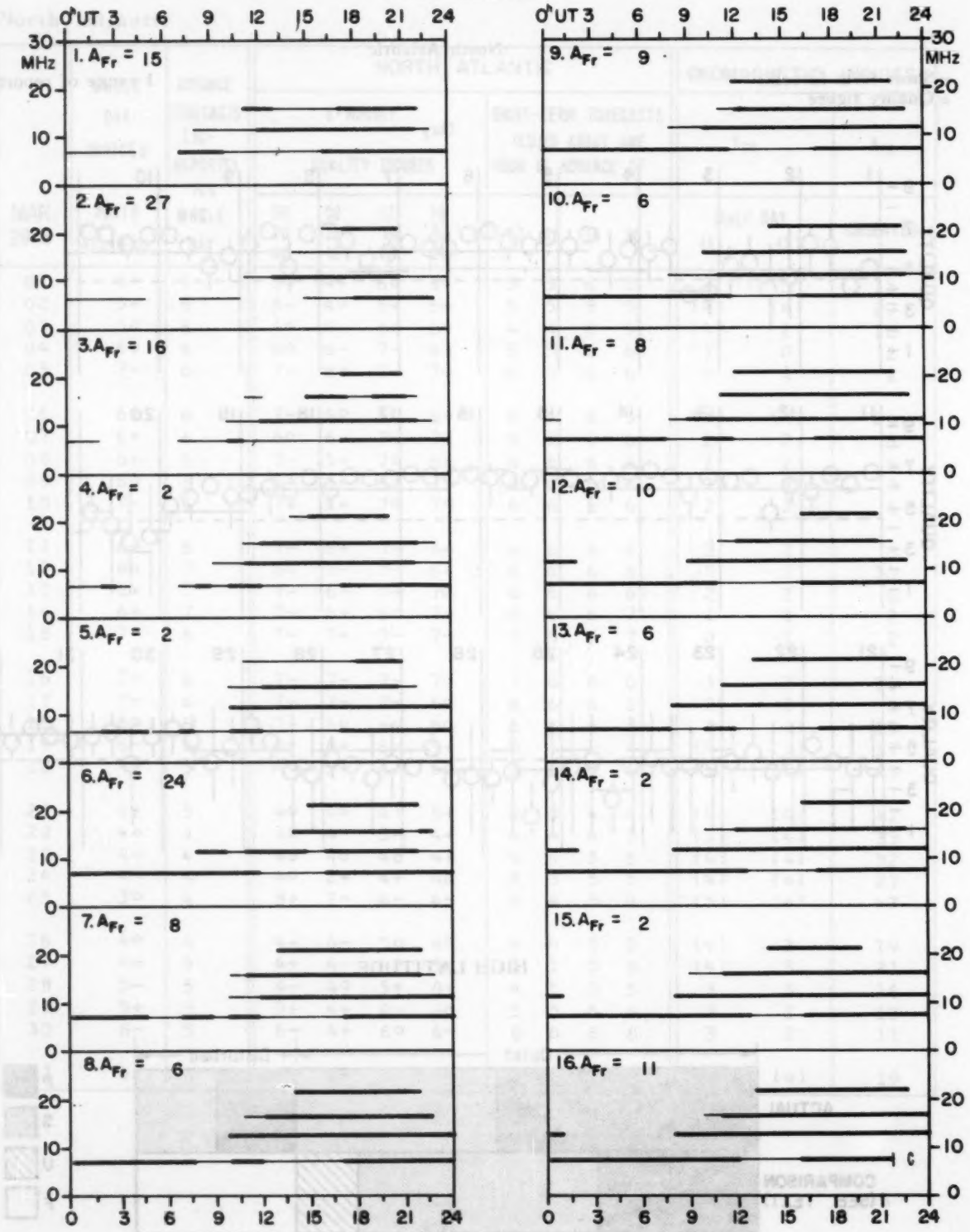


HIGH LATITUDE



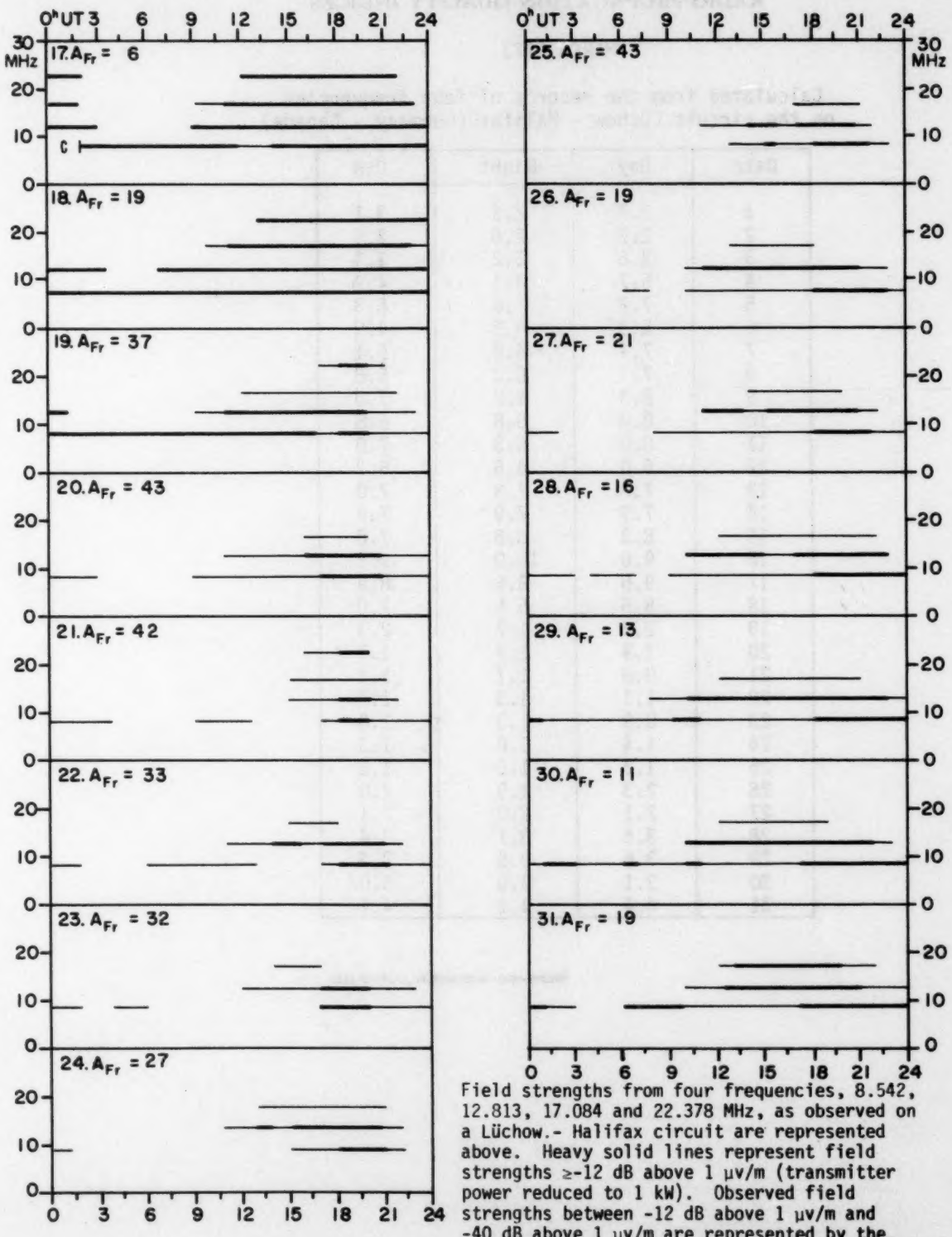
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

MARCH 1973



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

MARCH 1973



Field strengths from four frequencies, 8.542, 12.813, 17.084 and 22.378 MHz, as observed on a Lüchow.- Halifax circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. **Adapted from Observations by Deutsche Bundespost**

RADIO PROPAGATION QUALITY INDICES

MARCH 1973

Calculated from the records of four frequencies
on the circuit Lüchow - Halifax (Germany - Canada)

Date	Day	Night	D+N
1	3.7	2.5	3.1
2	2.7	2.6	2.5
3	3.6	3.2	3.4
4	5.7	4.1	4.9
5	7.2	5.6	6.3
6	5.3	4.9	4.9
7	7.4	4.9	6.1
8	7.7	6.3	6.8
9	8.3	5.9	7.0
10	8.0	5.8	6.8
11	8.0	6.3	7.0
12	6.0	4.6	5.3
13	7.8	7.3	7.0
14	7.9	7.9	7.4
15	8.3	8.3	7.8
16	9.6	10.0	9.2
17	9.5	8.6	8.9
18	8.6	5.5	7.0
19	2.8	1.7	2.3
20	1.9	1.9	1.7
21	0.8	1.7	1.1
22	1.1	1.3	1.2
23	0.9	1.3	1.0
24	1.4	1.0	1.3
25	1.6	1.5	1.6
26	2.3	1.9	2.0
27	2.1	2.0	2.1
28	3.5	3.7	3.4
29	3.6	3.5	3.4
30	3.1	3.0	3.0
31	4.4	4.1	4.1

USCOMM-NOAA-ASHEVILLE,NC,5-30-73-1125

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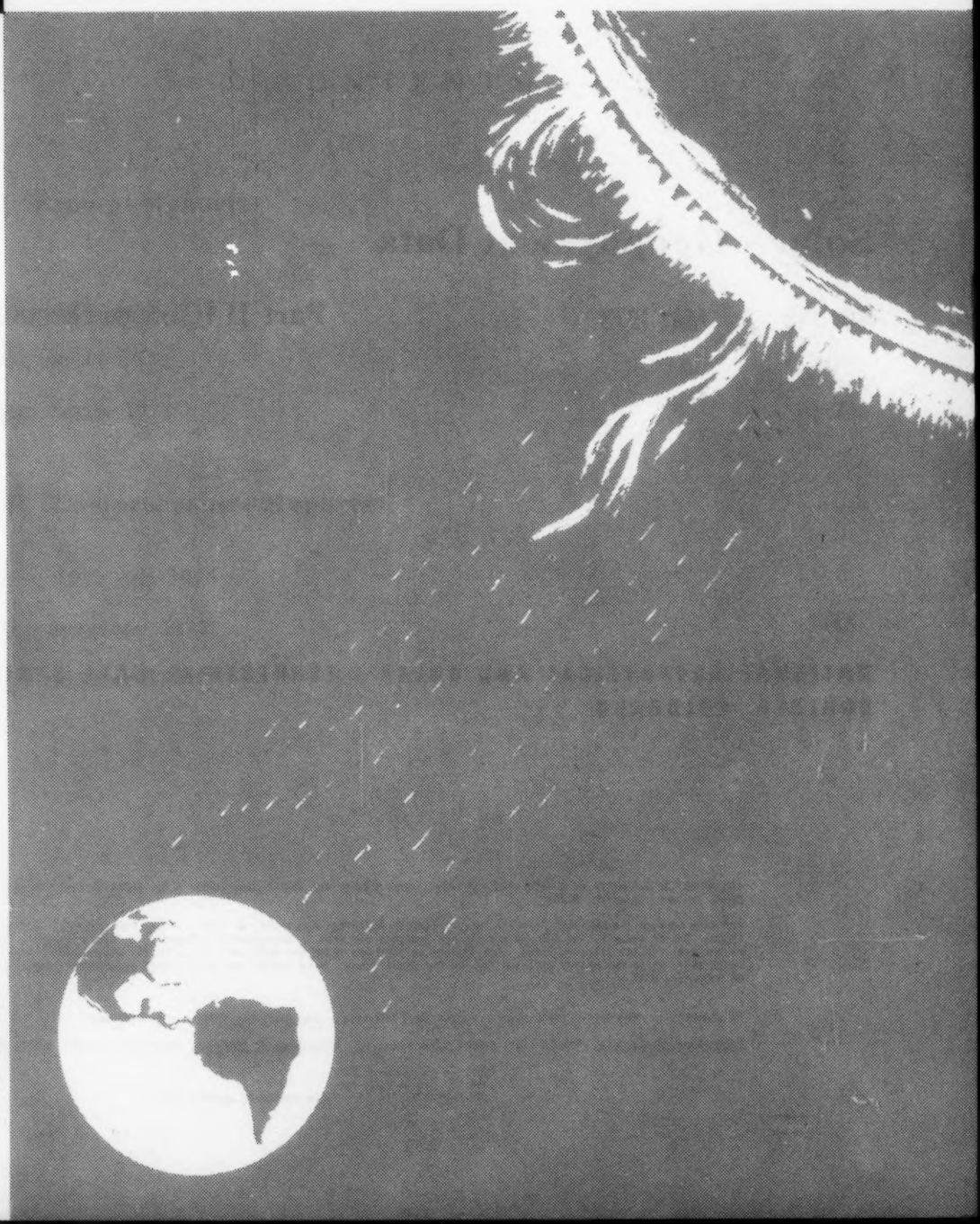
A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

SOLAR-GEOPHYSICAL DATA
(comprehensive reports)

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service

MAY 1973



NUMBER 345-PART II
DATA FOR
NOVEMBER 1972
OCTOBER 1972
& MISCELLANEA

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Solar - Geophysical Data

NO. 345 MAY 1973

Part II (Comprehensive Reports)

DATA FOR
NOVEMBER 1972
OCTOBER 1972
& MISCELLANEA

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
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* * * * *

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SOLAR - GEOPHYSICAL DATA

No. 345

Issued in two parts

Hope I. Leighton, Editor

J. Virginia Lincoln, Director
Solar - Terrestrial Data Services Division

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X-ray data from IMP-I may be available on a monthly basis at a later date. Also occasional examples of X-ray data for outstanding or unusual flares may be published.

For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

SOLAR FLARES
Confirmed

NOVEMBER 1972

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE NOV	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
755 CULG	01	0135E	0155		S12	W65	.918	12090	27.2	20D	1F		P	0135	2.06	4.00			3
GRP46756	01	0237	0252	0243	S08	W34	.589	12094	29.6	15	-N				1.24				2 2 2 3
MITK	01	0237	0252	0242	S08	W33	.576	12094	29.6	15	-N		C	0242	1.55	1.90			D
MANI	01	0240E	0252	0243	S07	W34	.585	12094	29.6	12D	-N	1		0243	.93	1.16			
GRP46758	01	0801	0817	0804	S09	W36	.620	12094	29.6	16	--N				.90				5 5 4 9
ABST	01	0754	0814	0802	S08	W36	.616	12094	29.6	20	1F		C	0802	2.25	2.80			EJ
ISTA	01	0800	0815		S08	W37	.628	12094	29.6	15	-N								
CAPS	01	0801E	0816D		S09	W36	.620	12094	29.6	15D	-N		V	0807	.30	.40		(176)	C
CATA	01	0805	0820	0805	S08	W37	.628	12094	29.6	15	-N	2	P	0805	.58	.74		(186)	
ARCE	01	0805E	0820D		S07	W36	.611	12094	29.6	15D	-N		C	0810	.34	.40			
ARCE	01	0810E	0810D		S16	W34	.634	12094	29.8		-B		C	0810	.12	.20			
GRP46760	01	0903	0913	0908	S15	W34	.628	12094	29.8	10	--N				.48				4 4 3 8
ISTA	01	0900	0915		S16	W35	.645	12094	29.8	15	-N								E
ARCE	01	0905E	0915D		S16	W34	.634	12094	29.8	10D	-N		C	0908	.37	.50			
CATA	01	0905	0905	0905	S14	W35	.633	12094	29.8		-N	3	P	0905	.58	.74		(178)	
TEHR	01	0910E	0918	0910U	S15	W31	.592	12094	30.1	8D	-N	3	V		.50				F
GRP46763	01	1307	1320	1310	S08	W39	.654	12094	29.6	13	-N				.74				5 4 3 7
HUAN	01	1305	1318	1306U	S08	W39	.654	12094	29.6	13	-N	1	C	1318					
CATA	01	1305	1320	1305	S07	W40	.663	12094	29.5	15	-N	3	C	1305	.87	1.16		(280)	
TEHR	01	1308E	1318	1310	S07	W36	.611	12094	29.8	10D	-N	2	V		.66				F
WEND	01	1308	1321		S08	W41	.679	12094	29.5	13	-N								
CAPS	01	1310E	1317D		S09	W38	.645	12094	29.7	7D	-N		V	1311	.70	1.00		(170)	
	01	1645	1656	NO FLARE PATROL															
	01	1750	1758	NO FLARE PATROL															
GRP46764	01	1913	1933	1916	S07	E48	.757	272	5.4	20	--B				.29				2 2 2 2
PALE	01	1913E	1934	1915	S06	E47	.744	272	5.3	21D	-B	2	V		.36				F
RAMY	01	1915E	1932	1916U	S07	E48	.757	272	5.4	17D	-N	1	V		.21				DE
765 PALE	01	2110E	2124	2112	S08	W38	.641	12094	30.8	14D	--N	2	V		.72				F 1
	01	2204	2223	NO FLARE PATROL															
GRP46769	02	0834	0847	0836	S10	W46	.743	12094	29.9	13	--N				.69				5 5 5 11
MONT	02	0832	0845	0836	S10	W44	.721	12094	30.1	13	-B		C	0836	.52				
CAPF	02	0832E	0840		S10	W45	.732	12094	30.8	8D	1N		P	0834	1.65	2.40			
ARCE	02	0835E	0850D	0837	S11	W46	.746	12094	29.9	15D	-N		C	0837	.31	.50			
CATA	02	0835	0855	0835	S09	W46	.740	12094	29.9	20	-B	3	C	0835	.58	.86		(251)	
CANR	02	0835	0845		S12	W50	.791	12094	29.6	10	-F	2	V	0836	.40	.60			
GRP46771	02	0956	1023	1002	S10	W12	.320	12101	1.5	27	--F				1.37				8 8 8 9
CATA	02	0955	1035	1000	S09	W13	.318	12101	1.4	40	-F	3	C	1000	1.44	1.52		(141)	
ARCE	02	0955E	1000D		S10	W12	.320	12101	1.5	5D	-N		C	1000	.72	.80			
ATHN	02	0956E	1019	0958	S09	W13	.318	12101	1.4	23D	-F	2	V		.66				DE
MONT	02	0956	1027	1004	S10	W13	.330	12101	1.4	31	-N		C	1004	1.13				
CAPS	02	0957	1024D		S10	W10	.299	12101	1.7	27D	-F		V	1002	1.20	1.20		(147)	
CRON	02	0958	1010		S10	W13	.330	12101	1.4	12	-F	2	V		.70				
TEHR	02	1002E	1020	1005	S10	W10	.299	12101	1.7	18D	-N	2	V		.99				DE
WEND	02	1003E	1024		S11	W13	.343	12101	1.4	21D	1N		P		4.13				
GRP46775	02	1155	1219	1200	S10	W46	.743	12094	30.0	24	--F				.88				4 4 4 9
TEHR	02	1152	1212	1201	S12	W43	.716	12094	30.3	20	-N	2	V		.99				F
CATA	02	1155	1225	1200	S06	W46	.732	12094	30.0	30	-N	3	P	1200	.87	1.27		(178)	
ATHN	02	1155E	1210D	1158	S10	W50	.786	12094	29.7	15D	-F	2	V		.66				DE
RAMY	02	1156	1220	1201	S10	W46	.743	12094	30.0	24	-F	3	V		.99				DE
GRP46778	02	1236	1302	1243	S10	W45	.732	12094	30.2	26	-F				1.09				4 4 3 7
CATA	02	1235	1315	1245	S09	W46	.740	12094	30.1	40	1N		C	1245	1.44	2.15		(178)	
HUAN	02	1237	1249		S09	W43	.706	12094	30.3	12	-F	1	C	1240					E
ATHN	02	1241E	1245D	1241U	S09	W48	.762	12094	29.9	4D	-F	2	V		.83				DE
CAPS	02	1242E	1302D		S12	W43	.716	12094	30.3	20D	-N		V	1243	1.00	1.40		(164)	
777 HUAN	02	1357	1402	1400	S07	W53	.810	12094	29.6	5	-F	1	C						8
	02	1544	1616	NO FLARE PATROL															
	02	1655	1656	NO FLARE PATROL															
	02	1951	2113	NO FLARE PATROL															
	02	2121	2131	NO FLARE PATROL															
	02	2359	0000	NO FLARE PATROL															

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

SOLAR FLARES
Confirmed

NOVEMBER 1972

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE NOV	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
781 MANI	03	0121E	0126	0122	S12	W56	.848	12094	29.9	5D	--F	2		0122	.31	.54			2
782 MANI	03	0213E	0244	0215	S11	W21	.436	12101	1.5	31D	--F	2		0215	.41	.46			2
GRP46785	03	1244	1321	1250	S13	W62	.898	12094	29.9	37	1B				1.44				5 5 5 6
MCMA	03	1242	1311D	1248	S13	W60	.883	12094	30.0	29D	1B		C	1248	1.03	2.40			E
ATHN	03	1243E	1318	1248	S12	W65	.918	12094	29.7	35D	-B	1		1248	1.02	1.67			
CATA	03	1245	1330	1250	S11	W61	.888	12094	30.0	45	1B	3	C	1250	1.73	3.77		(275)	
CANR	03	1245E	1316	1255U	S13	W65	.919	12094	29.7	31D	1N	2	C	1255	1.94				
CAPS	03	1250E	1321D		S17	W60	.890	12094	30.0	31D	1B		V	1253	1.50	3.80		(370)	
	03	1527	1649	NO FLARE PATROL															
GRP46786	03	1619	1624	1619	S17	W75	.969	12106	29.4	5	--N				.38				2 2 2 4
BOUL	03	1619E	1624	1619U	S17	W65	.924	12106	29.8	5D	-F	2	V	1619	.20	.40			
VORO	04	0134	0142	0135	S10	W75	.970	12106	29.4	8	-B		C	0135	.46	1.45		66	EJ
	03	1748	1844	NO FLARE PATROL															
	04	1854	2123	NO FLARE PATROL															
789 ATHN	05	0629	0731	0633	S14	W90	1.000	12094	29.5	62	-N	1	C						DE 3
790 ATHN	05	0641	0713	0646	S05	W60	.871	12106	31.8	32	-N	1	C		.50				DE 3
GRP46792	05	0955	1013	(1003)	S05	W63	.895	12106	31.7	18	--F				1.16				3 2 1 8
ISTA	05	0955	1010		S04	W62	.887	12106	31.8	15	-F								D
ONOR	05	1001E	1015D		S05	W64	.903	12106	31.6	14D	1N		V	1003			2.70		C
CATA	05	1015	1025	1015	S03	W63	.894	12106	31.7	10	1N	1	P	1015	1.16	2.58		(162)	
GRP46794	05	1700	1728	1704	S04	W66	.917	12106	31.8	28	-N								2 1 0 2
HUAN	05	1700	1727	1704	S04	W66	.917	12106	31.8	27	-N	1	C	1704					E
PALE	05	1716E	1729D		S03	W66	.916	12106	31.8	13D	-N	1	V						F
	05	1830	1904	NO FLARE PATROL															
	05	1926	1955	NO FLARE PATROL															
795 PALE	06	0247E	0315D	0248U	S10	W50	.785	12099	2.4	28D	--F	2	V		.67				F 1
	06	0458	0505	NO FLARE PATROL															
	06	1927	1929	NO FLARE PATROL															
	06	1936	2010	NO FLARE PATROL															
	07	2115	2138	NO FLARE PATROL															
	07	2207	2213	NO FLARE PATROL															
	08	0214	0220	NO FLARE PATROL															
	08	0231	0241	NO FLARE PATROL															
GRP46797	08	0455	0524	0458	S12	W61	.888	12105	3.6	29	--F				.37				2 2 2 3
MANI	08	0455E	0524	0458	S11	W61	.886	12105	3.6	29D	-N	1		0458	.41	.79			
TEHR	08	0457E	0515D	0457U	S12	W60	.880	12105	3.7	18D	-F	4	C		.33				F
	09	2021	2036	NO FLARE PATROL															
	09	2042	2048	NO FLARE PATROL															
	09	2132	2135	NO FLARE PATROL															
	09	2155	2235	NO FLARE PATROL															
	09	2254	2255	NO FLARE PATROL															
	10	1524	1547	NO FLARE PATROL															
	10	1643	1655	NO FLARE PATROL															
	10	2040	2047	NO FLARE PATROL															
	10	2110	2230	NO FLARE PATROL															
	11	1642	2300	NO FLARE PATROL															
806 TEHR	12	0539E	0547	0540U	N04	W65	.905	284	7.4	8D	--F	3	C		.64				F 3

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	DATE NOV	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MONATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
GRP46807	12	0845	0905	0845	N20	W80	.983	12104	6.4	20	-F				.87				3 2 1 7
ARCE	12	0835E	0900D		N16	W80	.983	12104	6.4	25D	-N		C	0859	.28				
CATA	12	0845	0905	0845	N20	W80	.983	12104	6.4	20	1F	2	C	0845	.87			(138)	
ISTA	12	0845	0904		N19	W79	.980	12104	6.4	19	-N								D
810 HUAN	12	1642	1647	1643	N04	W74	.960	284	7.1	5	--F	1	C	1643	.21				3
	12	1751	1807	NO FLARE PATROL															
	12	2043	2047	NO FLARE PATROL															
	12	2053	2111	NO FLARE PATROL															
	12	2116	2126	NO FLARE PATROL															
	12	2128	2143	NO FLARE PATROL															
	12	2235	2241	NO FLARE PATROL															
	13	2136	2213	NO FLARE PATROL															
	14	0302	0308	NO FLARE PATROL															
	14	1943	1948	NO FLARE PATROL															
	14	2018	2026	NO FLARE PATROL															
	14	2028	2033	NO FLARE PATROL															
	14	2051	2104	NO FLARE PATROL															
	14	2225	2235	NO FLARE PATROL															
8 STATIONS REPORTING GROUP 46812. 3 STATIONS OBSERVING AND NOT REPORTING.																			
GRP46812	15	1210	1243	1217	S14	E43	.717	12114	18.7	33	-N				.91				7 7 6 11
ISTA	15	1205	1245		S09	E44	.712	12114	18.8	40	-N								
RAMY	15	1206	1254	1215	S14	E40	.683	12114	18.5	48	-N	3	C		1.11				DE
ATHN	15	1209E	1251	1209U	S16	E44	.736	12114	18.8	42D	-N	3	V		.83				DE
CATA	15	1210	1250	1220	S16	E42	.714	12114	18.7	40	-B	3	C	1220	1.16	1.65		(204)	
HUAN	15	1212E	1252		S15	E43	.721	12114	18.7	40D	-N	1	P	1218	.52	.73			E
CANR	15	1212E	1227	1215	S12	E43	.710	12114	18.7	15D	-F	3	V	1212	1.20	1.60			
MEUD	15	1217	1223	1218	S15	E44	.732	12114	18.8	6	-F		C	1218	.62	.90			
46812	15	1218	1245	(1234)	S14	E40	.683	12114	18.5	35	*-F				1.20				2 2 1 8
ISTA	15	1210	1235		S13	E37	.643	12114	18.3	25	-F								E
CAPS	15	1224E	1255D		S15	E43	.721	12114	18.7	31D	-F		V	1234	1.20	1.70		(158)	
	15	1648	1657	NO FLARE PATROL															
	15	1714	1719	NO FLARE PATROL															
GRP46815	16	0903	0928	0910	S19	E32	.619	12114	18.8	25	--N				.75				3 3 3 5
ARCE	16	0901E	0925D		S18	E33	.623	12114	18.9	24D	-N		C	0903	.63	.80			
ATHN	16	0903	0939	0906	S20	E32	.626	12114	18.8	36	-F	2	C		.99				F
CATA	16	0905	0920	0910	S20	E32	.626	12114	18.8	15	-N	2	P	0910	.29	.37		(182)	
ATHN	16	0910E	0944	0910U	S20	E33	.637	12114	18.9	34D	-F	3	V		1.32				DE
819 RAMY	17	1857E	1912	1857U	S08	E78	.980	12116	23.6	15D	--F	2	C		.28				DE 2
	17	1942	1946	NO FLARE PATROL															
	17	1954	2153	NO FLARE PATROL															
	17	2203	2220	NO FLARE PATROL															
	17	2225	2227	NO FLARE PATROL															
GRP46821	18	1152	1218	1156	S11	E65	.914	12116	23.4	26	-N				.84				6 5 5 7
RAMY	18	1148	1217	1154	S10	E65	.913	12116	23.4	29	-N	3	C		.56				DE
TEHR	18	1149	1213	1155	S10	E64	.906	12116	23.3	24	-F	3	C		1.00				F
ATHN	18	1152E	1216D	1152U	S11	E66	.921	12116	23.4	24D	-N	2	C		1.16				DE
CATA	18	1155	1225	1200	S12	E65	.915	12116	23.4	30	1N	3	C	1200	.87	2.15		(174)	
CANR	18	1155	1220	1200	S11	E66	.921	12116	23.4	25	-F	3	V		.68				
HUAN	18	1206E	1226		S12	E67	.928	12116	23.5	20D	-F	1	P	1209					
GRP46822	18	1350	1405	1354	N05	W09	.162	12112	17.9	15	--F				.20				2 2 2 4
RAMY	18	1350	1405	1354	N05	W09	.162	12112	17.9	15	-F	4	C		.23				DE
ATHN	18	1354E	1405	1354U	N05	W08	.145	12112	18.0	11D	-F	1	C		.17				DE

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					APPROX.														
	DATE NOV	START	END	MAX. PHASE	LAT.	LONG. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP46825	19	0937	0949	0941	S16	W04	.323	12114	19.1	12	--N				.69				3 3 2 4
ISTA	19	0935	0941		S17	W03	.336	12114	19.2	6	-N								D
TEHR	19	0936E	0947	0936U	S17	W03	.336	12114	19.2	11D	-N	3	V		.50				DE
CATA	19	0940	1000	0945	S15	W05	.311	12114	19.0	20	-N	2	C	0945	.87	.91		(151)	
GRP46826	19	1259	1331	1301	S07	E38	.630	12115	22.4	32	--F				.19				2 1 1 5
RAMY	19	1259	1331	1301	S07	E38	.630	12115	22.4	32	-F	3	C		.19				DE
HUAN	19	1310	1343		S07	E38	.630	12115	22.4	33	-F	1	C	1320	.15	.20			D
GRP46827	19	1333	1354	1334	S16	W07	.336	12114	19.0	21	--N				.35				2 2 2 4
HUAN	19	1331	1352	1333	S16	W06	.331	12114	19.1	21	-N	1	C	1333	.41	.44			E
CATA	19	1335	1355	1335	S15	W08	.328	12114	19.0	20	-N	2	C	1335	.29	.30		(158)	
GRP46828	19	1415	1440	1420	S15	W06	.315	12114	19.1	25	--F				.66				2 2 1 3
HUAN	19	1413	1423D		S16	W06	.331	12114	19.1	10D	-F	1	P	1417					E
RAMY	19	1416	1440D	1420U	S14	W05	.295	12114	19.2	24D	-F	4	V		.66				DE
GRP46829	19	1446	1515	1449	S07	E37	.617	12115	22.4	29	--F				.34				2 2 2 2
HUAN	19	1444	1458U		S07	E37	.617	12115	22.4	14D	-F	1	C	1450	.21	.26			T
RAMY	19	1447	1515	1449	S07	E37	.617	12115	22.4	28	-F	3	C		.46				DE
830 HUAN	19	1517U	1538D		S07	E37	.617	12115	22.4	21D	--N	1	C	1531	.31	.40			E 2
GRP46831	19	1604	1638	1608	S07	E37	.617	12115	22.4	34	--F				.46				2 1 1 2
HUAN	19	1604U	1638		S07	E37	.617	12115	22.4	34D	-F	1	C	1623	.46	.59			
RAMY	19	1605E	1631	1608	S07	E36	.604	12115	22.4	26D	-F	3	C		.74				DE
832 RAMY	19	1619E	1635	1620U	S16	W07	.336	12114	19.2	16D	--F	3	V		.52				DE 2
GRP46834	20	0915	0927	0919	S11	E67	.927	12118	25.4	12	-N				.70				2 2 2 5
TEHR	20	0914	0929	0918	S10	E67	.926	12118	25.4	15	-N	3	C		.73				F
ATHN	20	0915	0925	0919	S11	E66	.920	12118	25.3	10	-N	3	C		.66				F
835 RAMY	20	1606	1626	1610	S15	W21	.454	12114	19.1	20	--F	3	C		.56				DE 1
836 RAMY	20	1707	1715	1708	S17	W18	.442	12114	19.4	8	--N	2	C		.37				DE 2
837 RAMY	20	1932	1945	1934	S17	W19	.452	12114	19.4	13	--F	2	C		.28				DE 3
838 PALE	20	2100	2114	2103	S14	W20	.433	12114	19.4	14	--F	3	V		.62				F 2
841 TEHR	21	1023	1031	1026	S07	E27	.477	12116	23.5	8	--F	4	C		.28				DE 3
GRP46842	21	1228	1241	1229	S17	W33	.612	12114	19.0	13	--N				.28				2 2 2 2
TEHR	21	1228	1242D	1229	S17	W32	.601	12114	19.1	14D	-N	3	C		.36				F
RAMY	21	1228E	1240	1228U	S16	W34	.618	12114	19.0	12D	-N	3	C		.19				DE
GRP46843	21	1327	1358	1330	S15	W34	.612	12114	19.0	31	-N				.86				3 2 2 3
RAMY	21	1324	1410	1329	S16	W34	.618	12114	19.0	46	-F	3	C		.56				DE
CATA	21	1330	1345	1330	S14	W34	.607	12114	19.0	15	-B	3	P	1330	1.16	1.45		(251)	
CANR	21	1343	1400	1345	S17	W34	.624	12114	19.0	17	-N	2	V	1345	.80	1.00			
844 CANR	21	1430	1438	1432	S17	W35	.636	12114	19.0	8	--N	2	V	1432	.60	.70			2
845 RAMY	21	1615	1623	1617	S15	W36	.637	12114	19.0	8	--N	3	V		.37				DE 2
846 BOUL	21	1756	1800	1759	S14	W36	.632	12114	19.0	4	-N	2	C	1759	.86	1.11			3
GRP46847	21	1930	1942	1932	S14	W38	.656	12114	19.0	12	--N				.36				3 3 3 3
BOUL	21	1930E	1940	1930U	S12	W38	.647	12114	19.0	10D	-N	3	V	1931	.20	.20			
PALE	21	1933E	1944	1934U	S14	W37	.644	12114	19.0	11D	-N	3	V		.41				DE
RAMY	21	1933E	1936D	1933U	S15	W38	.660	12114	19.0	3D	-N	2	V		.46				DE
GRP46848	21	1949	2003	1954	S16	W37	.654	12114	19.1	14	--N				.67				2 2 1 3
BOUL	21	1949	2003	1951	S17	W37	.659	12114	19.1	14	-N	3	V						
PALE	21	1949	2002	1956U	S15	W36	.637	12114	19.1	13	-N	3	V		.67				F
	21	2146	2151	NO FLARE PATROL															
GRP46849	22	0040	0052	0042	S18	W41	.708	12114	19.0	12	-N				1.13				3 3 3 3
CULG	22	0039	0048	0042	S20	W40	.707	12114	19.0	9	1F		C	0042	1.65	2.20			V
MANI	22	0040E	0100	0042	S16	W42	.710	12114	18.9	20D	-N	1		0042	.62	.91			
MITK	22	0041	0047	0043	S17	W42	.714	12114	18.9	6	-N		C	0043	1.13	1.40			D
GRP46851	22	0531	0601	0535	S07	W02	.161	12115	22.1	30	--F				.40				2 2 2 5
MANI	22	0531E	0555	0531	S07	W01	.158	12115	22.2	24D	-F	1		0531	.52	.53			
TEHR	22	0536E	0607	0538	S07	W02	.161	12115	22.1	31D	-N	3	C		.28				DE H

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	DATE NOV	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY					TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP46852	22	0758	0824	0801	S07	W03	.165	12115	22.1	26	-B				1.55				5 5 5 6
CRCN	22	0756	0817	0802	S06	W04	.156	12115	22.0	21	-F	1	C	0802	.75	.75			
TEHR	22	0757	0832	0801	S07	W03	.165	12115	22.1	35	1B	1	C		2.56				F H
CANR	22	0757	0823	0801U	S07	W03	.165	12115	22.1	26	-B	3	V	0801	1.40	1.40			
ATHN	22	0758E	0824	0802	S07	W03	.165	12115	22.1	26D	-B	2	C		1.32				F H
CATA	22	0800	0825	0800	S06	W04	.156	12115	22.0	25	-B		C	0800	1.73	1.75		(363)	
GRP46854	22	0932	1001	0935	S13	E52	.806	12118	26.3	29	1B				2.11				4 4 4 6
TEHR	22	0931	0957	0936	S16	E53	.823	12118	26.4	26	1B	4	V		3.63				DE
ATHN	22	0931	1003	0937	S15	E53	.820	12118	26.4	32	1N	2	C		2.15				F
CANR	22	0931	0959	0933	S13	E50	.786	12118	26.1	28	-B	3	V	0933	1.20	1.80			
CATA	22	0935	1005	0935	S06	E51	.783	12118	26.2	30	1B	3	C	0935	1.44	2.32		(251)	
GRP46855	22	1003	1024	1018	S06	W04	.156	12115	22.1	21	-N				.92				5 5 5 5
TEHR	22	0958	1006	1002	S07	W03	.165	12115	22.2	8	-N	4	V		1.65				F H
ATHN	22	0959	1028	1003	S06	W04	.156	12115	22.1	29	-N	2			.33				DE H
CANR	22	1005	1030	1011	S07	W02	.161	12115	22.3	25	-B	3	V	1011	.80	.80			
CATA	22	1010	1030	1015	S06	W05	.164	12115	22.0	20	-B	3	C	1015	.87	.88		(209)	
KODA	22	1017	1025	1017	S06	W04	.156	12115	22.1	8	-N		V	1019	.97	.97	2.12		E
GRP46856	22	1207	1232	1209	S06	W06	.174	12115	22.1	25	--B				.80				3 3 3 5
CANR	22	1206	1229	1210	S07	W07	.198	12115	22.0	23	-B	3	V	1210	.80	.80			
RAMY	22	1206E	1233	1206	S05	W05	.150	12115	22.1	27D	-N	3	C		.74				DE
CATA	22	1210	1235	1210	S06	W07	.185	12115	22.0	25	-B	3	C	1210	.87	.88		(209)	
GRP46858	22	1418	1443	1425	S06	W07	.185	12115	22.1	25	--N				.71				4 4 4 5
CATA	22	1415	1435	1425	S06	W08	.196	12115	22.0	20	-N	2	P	1425	.58	.59		(170)	
RAMY	22	1417	1449	1421	S05	W06	.161	12115	22.1	32	-N	3	C		.74				DE
CANR	22	1420	1440		S07	W07	.198	12115	22.1	20	-N	2	V	1423	1.20	1.20			
BOUL	22	1421	1448	1430	S06	W06	.174	12115	22.1	27	-F	2	C	1430	.32	.32			
GRP46859	22	1633	1658	1638	S07	W09	.220	12115	22.0	25	--N				.91				4 4 4 4
MCMA	22	1613E	1630D	1617	S08	W10	.244	12115	21.9	17D	-F		C	1617	.41	.40			E
BOUL	22	1630	1645D	1637	S06	W09	.209	12115	22.0	15D	-N	2	C	1637	.86	.86			
RAMY	22	1630	1655D	1637U	S07	W06	.188	12115	22.2	25D	-N	3	V		.66				DE
MCMA	22	1633E	1705	1637	S08	W10	.244	12115	21.9	32D	-N		C	1637	.52	.50			E
CANR	22	1638	1654	1641	S07	W09	.220	12115	22.0	16	-N	2	V	1641	1.60	1.70			
GRP46860	22	1911	1937	1917	S07	W10	.233	12115	22.0	26	-B				1.42				4 4 4 4
RAMY	22	1911	1927D	1916	S06	W08	.196	12115	22.2	16D	-B	3	V		.99				DE
BOUL	22	1911	1932	1917	S07	W08	.209	12115	22.2	21	-N	2	C	1917	1.61	1.62			
MCMA	22	1912	1940	1916	S09	W12	.280	12115	21.9	28	-B		C	1916	1.83	1.80			E
PALE	22	1913E	1938	1920	S04	W12	.232	12115	21.9	25D	1B	2	V		2.06				F U
861 PALE	22	2138E	2146	2140	S05	W11	.226	12115	22.1	8D	--N	3	V		.21				2
862 BOUL	22	2150	2205	2150	S01	E57	.839	12126	27.2	15	--F	3	V	2150	.10	.20			2
863 BOUL	22	2150	2200	2150U	S07	E32	.547	12118	25.3	10	--F	3	V	2150	.12	.20			2
	22	2232	2240	NO FLARE PATROL															
GRP46864	23	0200	0230	0204	S07	W13	.271	12115	22.1	30	-B				1.16				4 4 4 5
MANI	23	0157	0231	0203	S08	W13	.281	12115	22.1	34	-B	2		0203	1.55	1.62			
PALE	23	0201E	0213D	0203	S06	W14	.277	12115	22.0	12D	-N	2	V		.93				UDE
CRON	23	0202	0225	0206	S07	W13	.271	12115	22.1	23	-N	3	V	0206	.78				
MITK	23	0204E	0235		S07	W13	.271	12115	22.1	31D	-B		C	0204	1.44	1.50			E
GRP46869	23	0754	0821	0758	S15	W54	.829	12114	19.3	27	-N				1.08				5 5 5 6
TACH	23	0748	0811D	0755	S14	W53	.818	12114	19.3	23D	1F		C	0755	1.45	2.57	2.25	48	E
CATA	23	0750	0848	0805	S13	W53	.816	12114	19.4	50	1N	3	C	0805	1.16	2.00		(195)	
ATHN	23	0751E	0813D	0752	S14	W53	.818	12114	19.4	22D	-N	2	C		.66				DE
TEHR	23	0753E	0826	0757	S16	W55	.840	12114	19.2	33D	-N	2	V		1.32				F
CATA	23	0755	0820	0755	S16	W52	.813	12114	19.4	25	-N	3	C	0755	.29	.47		(158)	
CANR	23	0801	0817	0801	S16	W58	.866	12114	19.0	16	-N	2	V	0805	.80	1.50			
GRP46870	23	0919	0925	0921	S06	W14	.277	12115	22.3	6	--F				.50				2 2 1 4
TEHR	23	0918	0923	0921	S06	W12	.248	12115	22.5	5	-F	2	V		.50				DE
ISTA	23	0919	0926		S06	W15	.291	12115	22.3	7	-F								E
GRP46871	23	1205	1212	1205	S06	W19	.351	12115	22.1	7	--N				.40				2 2 2 4
ATHN	23	1204E	1209	1204U	S06	W19	.351	12115	22.1	5D	-N	2	V		.50				DE
CATA	23	1205	1215	1205	S05	W19	.345	12115	22.1	10	-N	3	C	1205	.29	.30		(200)	
GRP46872	23	1206	1231	1213	S11	E28	.510	12118	25.6	25	--F				.91				2 2 2 4
CATA	23	1200	1235	1210	S12	E27	.503	12118	25.5	35	-N	3	C	1210	1.44	1.67		(162)	
RAMY	23	1212	1227	1216	S09	E28	.499	12118	25.6	15	-F	2	C		.37				DE

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OBSERV-ATORY	OBSERVED UT				LOCATION						DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
					APPROX.															
	DATE NOV	START	END	MAX. PHASE	LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY		MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	
GRP46873	23	1400	1418	1402	S05	W22	.391	12115	21.9		18	--N				.58				3 3 3 3
RAMY	23	1357	1411	1359	S05	W20	.366	12115	22.1		14	-N	3	C		.46				DE
MCMA	23	1358	1407D	1401	S05	W24	.422	12115	21.8		9D	-N		C	1401	.41	.40			E
CATA	23	1405	1425	1405	S04	W22	.387	12115	21.9		20	-B	3	C	1405	.87	.94		(224)	
GRP46874	23	1408	1424	1411	S10	E27	.491	12118	25.6		16	--N				.80				4 3 3 5
MCMA	23	1403	1407D		S20	E25	.543	12118	25.5		4D	-N		P	1407	.31	.40			E
CANR	23	1405	1425		S10	E27	.491	12118	25.6		20	-N	2	V	1410	1.00	1.10			
RAMY	23	1409	1423	1411	S10	E27	.491	12118	25.6		14	-F	4	V		.83				DE
CATA	23	1410	1425	1410	S11	E26	.483	12118	25.5		15	-N	3	C	1410	.58	.66		(191)	
876 HUAN	23	1531	1552		S05	W22	.391	12115	22.0		21	--F	1	C	1543	.31	.34			T 2
877 HUAN	23	1605	1627	1617U	S06	W23	.411	12115	21.9		22	-N	1	C	1617					E 2
878 HUAN	23	1636	1642		S06	W20	.366	12115	22.2		6	--F	1	C	1638					2
879 MITK	23	2357E	0023		S06	W29	.500	12115	21.8		26D	--F		C	2357	1.13	1.30			D 4
GRP46883	24	1236	1317	1253	S07	W33	.560	12115	22.1		41	-N				1.31				6 5 5 6
ATHN	24	1232	1314	1252	S07	W32	.546	12115	22.1		42	-N	2	C		.99				F
TEHR	24	1233	1309D	1250	S07	W34	.574	12115	22.0		36D	-N	3	C		1.28				F
CATA	24	1235	1325	1240	S05	W33	.554	12115	22.0		50	-B	3	C	1240	1.16	1.39		(240)	Z
UPIC	24	1237	1312	1256	S08	W34	.578	12115	22.0		35	-B		P	1256	1.26				K
UPIC	24	1238	1308	1256	S07	W32	.546	12115	22.1		30	-N		P	1256	.63				K
CANR	24	1240	1320	1253	S07	W35	.588	12115	21.9		40	1N	3	V		1.80				
RAMY	24	1256E	1323	1256U	S06	W33	.557	12115	22.1		27D	-N	3	C		1.24				U
GRP46885	24	1836	1848	1838	S09	W16	.330	12116	23.6		12	--N				.81				4 4 4 5
MCMA	24	1836	1850	1839	S09	W18	.357	12116	23.4		14	-N		C	1839	.83	.90			E
RAMY	24	1836	1848	1838	S09	W17	.343	12116	23.5		12	-N	2	C		.93				F
BOUL	24	1836	1845	1838	S09	W15	.316	12116	23.6		9	-N	2	C	1838	.86	.90			
HUAN	24	1837	1848	1838	S08	W15	.307	12116	23.7		11	-N	1	C	1838	.62	.65			E
887 PALE	24	2217	2225	2219	S07	E12	.256	12118	25.8		8	--F	2	V		.26				1
GRP46888	24	2312	2324	2316	S10	E09	.256	12118	25.6		12	--F				.47				2 2 2 2
PALE	24	2312E	2323	2314	S08	E09	.230	12118	25.6		11D	-N	2	V		.52				F
PALE	24	2314	2356	2347	S08	E09	.230	12118	25.6		42	-N	2	V		.52				F
MANI	24	2316E	2325	2318	S11	E08	.260	12118	25.6		7D	-F	1		2318	.41	.43			
PALE	24	2345	2356	2347	S08	E09	.230	12118	25.7		11	-N	2	V		.52				F
890 MITK	25	0045E	0127	0054	S07	W44	.704	12115	21.7		42D	1F		C	0054	1.96	2.70			E 3
GRP46893	25	0723	0754	0727	S05	W41	.663	12115	22.2		31	--N				.51				3 3 3 8
TACH	25	0722	0742	0725	S05	W42	.675	12115	22.2		20	-N		C	0725	.83	1.10	2.67	54	CL
MANI	25	0723	0805	0730	S06	W41	.665	12115	22.2		42	-N	2		0730	.41	.56			
CATA	25	0725	0755	0725	S05	W40	.650	12115	22.3		30	-B	1	C	0725	.29	.38		(284)	
GRP46894	25	0828	0911	0830	S06	W44	.702	12115	22.0		51	1B				2.80				8 8 8 10
ARCE	25	0805	0926D	0828	S06	W45	.714	12115	22.0		81D	1B		C	0828	2.06	2.90			
MONT	25	0816	0905D	0835	S07	W44	.704	12115	22.0		49D	1B		C	0835	2.58				
MANI	25	0818	0826	0823	S05	W44	.700	12115	22.0		8	1N	2		0823	1.55	2.24			
TEHR	25	0818	0915	0824	S06	W44	.702	12115	22.0		57	1B	2	C		2.81				F Z
KODA	25	0822	0909	0834	S07	W43	.692	12115	22.1		47	2B		C	0838	6.39	6.40	2.56		HIKUV
CATA	25	0825	0855	0825	S05	W45	.713	12115	22.0		30	1B	2	P	0825	2.82	2.89		(282)	
ABST	25	0838E	0903	0838	S06	W45	.714	12115	22.0		25D	1F		P	0838	2.43	3.60			BE
UPIC	25	0839E	0923		S08	W45	.718	12115	22.0		44D	1B		P	0839	3.36				F
GRP46895	25	1018	1043	1031	S06	W44	.702	12115	22.1		25	--N				.34				3 3 3 6
MONT	25	1011	1029D	1028	S06	W44	.702	12115	22.1		18D	-N		C	1028	.21				
CATA	25	1025	1050	1035	S05	W44	.700	12115	22.1		25	-B	2	C	1035	.80	.81		(245)	
UPIC	25	1026E	1036	1030	S07	W45	.716	12115	22.1		10D	-F		P	1030	.21				
897 RAMY	25	1452	1526	1456	S06	W46	.726	12115	22.2		34	--F	3	C		.28				DE 2
898 PALE	25	2020E	2029	2022	S13	W52	.805	12123	21.9		9D	--F	2	V		.52				F 2
899 PALE	25	2202E	2214	2205	S13	E61	.885	12125	30.5		12D	--F	3	V		.41				2
900 MITK	25	2341E	2355	2343	S07	W53	.805	12115	22.8		14D	1N		C	2343	1.55	2.60			D 3
901 MITK	26	0209	0226	0214	S06	W54	.814	12115	22.8		17	1B		C	0214	1.34	2.40			D 2
GRP46902	26	0503	0540	0516	S07	W57	.844	12115	21.9		37	1N				2.14				4 4 3 4
MITK	26	0503	0542D	0517	S07	W57	.844	12115	21.9		39D	1B		C	0517	2.48	4.60			E
TACH	26	0503	0549	0517	S08	W57	.845	12115	21.9		46	1N		C	0517	2.56	4.54	3.64	63	CEL
CRON	26	0512E	0525	0515	S06	W56	.833	12115	22.8		13D	1N	2	V						
TEHR	26	0515E	0542	0515U	S06	W56	.833	12115	22.8		27D	-N	1	C		1.37				F

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE NOV	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CONO.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
906 RAMY	26	1440	1506	1445	N15	W24	.458	12124	24.8	26	--F	3	C		.28				DE 4
907 RAMY	26	1530	1538	1531	N15	W29	.524	12124	24.5	8	--F	3	C		.19				DE 2
908 PALE	26	1907	1913	1909	S05	W59	.860	12115	22.4	6	--N	2	V		.52				2
	26	2257	2346	NO FLARE PATROL															
	26	2348	2353	NO FLARE PATROL															
910 RAMY	27	1537	1546	1540	S05	W77	.975	12115	21.9	9	--F	3	C		.19				DE 1
GRP46911	27	1829	1840	1833	S03	W05	.116	12126	27.4	11	--F				.49				2 2 2 2
RAMY	27	1829	1839	1833	S04	W06	.140	12126	27.3	10	-F	3	C		.56				F
PALE	27	1832E	1841	1833	S01	W03	.067	12126	27.5	90	-N	2	V		.41				F
GRP46912	27	1917	1937	1921	S11	W33	.575	12118	25.3	20	-N				1.39				2 1 1 2
RAMY	27	1917	1937D	1921	S11	W33	.575	12118	25.3	20D	-N	3	C		1.39				F
PALE	27	1930E	1933U	1930U	S08	W23	.419	12118	26.1	3D	-N	2	V		.52				F
	27	1937	1958	NO FLARE PATROL															
	27	2027	2110	NO FLARE PATROL															
GRP46915	28	0355	0426	0403	S08	W80	.986	12115	22.2	31	1N				1.08				5 3 3 6
MANI	28	0321	0405	0332	S08	W80	.986	12115	22.1	44	-N	2		0332	.52	1.33			
CRON	28	0350	0430	0407	S08	W81	.988	12115	22.1	40	1N	2	V	0407	.70				
CULG	28	0358	0420	0401	S08	W80	.986	12115	22.2	22	1N		C	0401	1.24				
MITK	28	0358	0429	0402	S07	W80	.986	12115	22.2	31	1N		C	0402	1.24				EH
TEHR	28	0412	0432	0416	S07	W86	.998	12115	21.7	20	1N	2	C		1.09				F
	28	1708	1802	NO FLARE PATROL															
	28	1831	1837	NO FLARE PATROL															
	28	1842	1925	NO FLARE PATROL															
	28	1935	1946	NO FLARE PATROL															
	28	2000	2008	NO FLARE PATROL															
	28	2144	2154	NO FLARE PATROL															
GRP46917	29	0146	0201	0151	S03	W21	.365	12126	27.5	15	-N	1			.82				3 3 3 6
MANI	29	0145E	0158	0149	S02	W21	.362	12126	27.5	13D	-N	1		0149	.72	.77			
MITK	29	0147	0201	0148	S05	W20	.357	12126	27.6	14	-N		C	0148	1.34	1.40			D
PALE	29	0153E	0205	0155U	S02	W22	.378	12126	27.4	12D	-F	2	V		.41				F
	29	0450	0525	NO FLARE PATROL															
	29	0535	0554	NO FLARE PATROL															
GRP46919	29	1915	1922	1916	S16	W17	.407	12126	28.5	7	--N				.37				3 3 3 3
RAMY	29	1914	1923	1916	S16	W16	.396	12126	28.6	9	-N	3	C		.37				DE
HOMA	29	1915	1921	1916	S16	W20	.441	12126	28.3	6	-N		C	1916	.21	.20			D
PALE	29	1916E	1923	1917	S15	W15	.374	12126	28.7	7D	-N	3	V		.52				F
	29	2216	2222	NO FLARE PATROL															
	30	0112	0135	NO FLARE PATROL															
	30	0140	0145	NO FLARE PATROL															
GRP46920	30	0741	0753	0745	S17	W24	.496	12126	28.5	12	--F				.33				2 2 1 4
ISTA	30	0740	0752		S17	W24	.496	12126	28.5	12	-N								
ATHN	30	0742	0753	0745	S17	W23	.484	12126	28.6	11	-F	1	C		.33				DE
GRP46922	30	0951	1006	0954	S17	W25	.508	12126	28.5	15	--N				.65				4 4 4 4
ATHN	30	0949	1009	0953	S17	W25	.508	12126	28.5	20	-N	1	C		.50				DE
UPIC	30	0950	1003	0951	S17	W25	.508	12126	28.5	13	-N		P	0951	.63				K
CROM	30	0951	1003	0952	S17	W24	.496	12126	28.6	12	-N	2	V	0951	.45				
CANR	30	0955	10100	1000	S16	W26	.512	12126	28.5	15D	-F	1	V	1000	1.00	1.00			
GRP46924	30	1335	1353	1338	S16	W26	.512	12126	28.6	18	--N				.46				3 3 3 5
ATHN	30	1335	1356	1340	S17	W26	.520	12126	28.6	21	-F	1	C		.66				F
RAMY	30	1335	1353	1336	S16	W26	.512	12126	28.6	18	-N	4	V		.33				DE
CANR	30	1335	1350	1337	S16	W26	.512	12126	28.6	15	-N	2	V	1337	.40	.40			

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE NOV	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP46925	30	1518	1532	1521	S16	W28	.537	12126	28.5	14	--N				.76				3 3 3 3
RAMY	30	1516	1530	1521	S16	W27	.525	12126	28.6	14	-N	4	V		.66				DE
HCMA	30	1517	1524D	1520	S15	W31	.568	12126	28.3	7D	-N		P	1520	.52	.60			E
CANR	30	1520	1533	1523	S16	W27	.525	12126	28.6	13	-N	2	V	1523	1.10	1.10			
926 RAMY	30	1707	1725	1710	S16	W28	.537	12126	28.6	18	--N	3	V		.66				DE 2
927 HCMA	30	1916	1920	1917	S15	W33	.593	12126	28.3	4	--N		C	1917	.31	.40			EH 3
929 PALE	30	2228E	2246	2231U	S15	W08	.307	12125	30.3	18D	--F	3	V		.77				F 2

"Remarks":
A = Eruptive prominence, base at >90°.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (H or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Note:
A line of explanation has been added before each flare event having more than one maxima. The total number of stations reporting some part of the event is given. The number of stations observing at the time of the principal maximum but not reporting the event is given in the second statement. Care should be exercised in utilizing the numbers in the remarks column. The first number is the number of stations reporting the individual maximum, and not the total number of stations reporting some part of the flare event. The last number is the number of stations reporting at the time of the individual maximum and not necessarily the total number of stations observing during the flare event. GRP numbers may appear several times in order to indicate secondary maxima. An asterisk beside an importance indicates a secondary maximum. The word "GRP" has also been omitted to aid in pointing to this condition.
When it is impossible to determine the time of Maximum Phase from the individual reports the time of Area Measurements is used. This time appears in parentheses. For Flares reported by only one station the last 3 digits of the group number appear to the left of the station code.

In the importance column "--" signifies the subflare has been confirmed by the NOAA grouping program but is not included in the I.A.U. Quarterly Bulletin on Solar Activity. These subflares are also not included in the Flare Index below.

DAILY FLARE INDICES

Date	Flare Index	HR OBS	Date	Flare Index	HR OBS	Date	Flare Index	HR OBS
721101	12.16	23.4	721111	0.00	17.7	721123	18.54	24.0
721102	8.54	21.9	721112	3.99	22.9	721124	9.06	24.0
721103	11.45	21.7	721113	0.00	23.4	721125	74.33	24.0
721104	0.00	21.5	721114	0.00	23.2	721126	33.93	23.1
721105	3.01	23.0	721115	4.37	23.8	721127	10.37	22.9
721106	0.00	23.3	721117	0.00	21.6	721128	6.08	21.8
721107	0.00	23.5	721118	3.72	24.0	721129	3.61	23.0
721108	0.00	23.7	721120	2.59	24.0	721130	0.00	23.5
721109	0.00	22.9	721121	7.81	23.9			
721110	0.00	22.0	721122	58.03	23.9			

When no Flare Index is given, it is 0 for that day.

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Unconfirmed
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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE NOV	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
757 CRON	01	0641	0702		S12	W54	.830	12090	28.2	21	-N	3	V	0645	.98				2
759 ARCE	01	0827E	0855D		S12	W32	.585	12094	30.0	28D	-B		C	0838	.15	.20			7
761 ARCE	01	0935E	0945D		S16	W35	.645	12094	29.8	10D	-N		C	0935	.34	.40			7
762 TEHR	01	1229	1247	1232	S14	W33	.609	12094	30.0	18	-F	3	V		.66				F 5
766 MANI	02	0650E	0712	0656	S11	W43	.713	12094	30.1	22D	-F	1		0656	.62	.89			3
767 MANI	02	0655	0712	0703	S15	W45	.750	12094	29.9	17	-F	1		0703	.62	.94			4
GRP46768	02	0810	0820	0814	S11	W43	.713	12094	30.1	10	-N				.53				2 2 2 12
MONT	02	0810	0820	0814	S10	W44	.721	12094	30.0	10	-N		C	0814	.72				
TEHR	02	0813E	0819	0813U	S12	W41	.693	12094	30.3	6D	-N	4	V		.33				F
GRP46770	02	0942	0948	0944	S10	W45	.732	12094	30.0	6	-N				.43				2 2 2 8
TEHR	02	0941	0949	0944	S10	W46	.743	12094	30.0	8	-N	1	V		.33				DE
MONT	02	0942	0947	0943	S10	W44	.721	12094	30.1	5	-N		C	0943	.52				
772 CANR	02	1002	1009		S10	E12	.320	12105	3.3	7	-F	1	V	1009	.40	.40			10
773 MONT	02	1129	1132	1131	S16	W50	.803	12094	29.7	3	-N		C	1131	.41				H 6
774 MONT	02	1129	1136	1132	S07	W52	.800	12094	29.6	7	-N		C	1132	.41				6
778 HUAN	02	1440	1450		S07	W53	.810	12094	29.6	10	-F	1	C	1446					7
779 MANI	02	2231E	2243	2231	S10	W51	.796	12094	30.1	12D	-N	1		2231	.83	1.31			3
780 MANI	02	2325E	2336	2326	S11	W55	.837	12094	29.9	11D	-N	2		2326	.41	.72			3
783 ATHN	03	0555E	0613	0557	S08	W64	.906	12094	29.4	18D	-F	1		0557	.34	.55			4
GRP46784	03	1136	1146	1138	S08	W16	.343	12099	2.3	10	-F				.43				2 2 2 6
MONT	03	1136	1148	1138	S08	W15	.331	12099	2.4	12	-N		C	1138	.52				
ATHN	03	1137E	1144	1137	S07	W17	.347	12099	2.2	7D	-F	1		1137	.34	.33			
787 MANI	04	0134E	0146	0136	S08	W75	.969	12094	29.4	12D	-F	2		0136	.31	.73			4
788 HUAN	04	1357	1428		S05	W52	.796	12106	31.7	23	-F	1	C	1358	.21	.34			6
791 ARCE	05	0915E	0930D		S05	W62	.888	12106	31.7	15D	-N		C	0925	.46	1.00			8
GRP46793	05	1146	1200	1150	S04	W64	.902	12106	31.7	14	-F				.48				2 2 2 6
RAMY	05	1145	1200D	1150	S03	W63	.894	12106	31.8	15D	-N	2	V		.46				DE
ATHN	05	1147E	1202	1150	S04	W64	.902	12106	31.7	15D	-F	2	V		.50				DE
ATHN	05	1147	1159	1150	S04	W64	.902	12106	31.7	12	-F	1	C		.33				DE
796 MONT	06	0818E	0821	0819	S04	W76	.972	12106	31.6	3D	-N		C	0819	.41				9
798 TEHR	08	0632	0650	0637	S12	W61	.888	12105	3.7	18	-F	4	C		.17				DE 5
799 CATA	08	1200	1235	1205	S11	W65	.916	12105	3.6	35	-N	2	C	1205	.29	.72		(155)	5
800 ATHN	09	1011E	1024	1012	S10	W76	.974	12105	3.7	13D	-F	3	V		.33				DE 4
801 MONT	09	1216	1222	1220	N05	W29	.484	284	7.3	6	-N		C	1220	.41				H 8
802 ATHN	09	1241	1251	1242	S15	W81	.991	12105	3.5	10	-F	2	C		.33				DE 5
803 ABST	10	0557E	0616D	0557	N05	W42	.668	284	7.1	19D	-F		P	0557	1.44	1.90			BE 3
804 ATHN	10	0857	0904	0900	N05	W43	.681	284	7.1	7	-F	2	C		.17				DE 7
805 TEHR	11	0500	0515	0504	N04	W50	.765	284	7.5	15	-F	3	V		.25				Z 5
808 ISTA	12	0857	0902		N06	W68	.926	284	7.3	5	-F								D 7
809 HUAN	12	1202	1207	1203U	N17	W85	.995	12104	6.1	5	-F	1	C	1203					6
811 HUAN	14	1243	1247	1244	S16	E51	.888	12114	18.4	4	-F	1	C	1244	.10	.17			D 7
GRP46813	16	0239	0250	0241	S12	E31	.561	12114	18.4	11	-F				.39				2 2 2 6
MANI	16	0239E	0248	0241	S12	E31	.561	12114	18.4	9D	-F	1		0241	.41	.50			
PALE	16	0239E	0251	0241U	S12	E30	.549	12114	18.4	12D	-F	2	V		.36				F
814 ARCE	16	0901E	0915D		S13	E26	.504	12114	18.3	14D	-F		C	0903	.15	.20			7

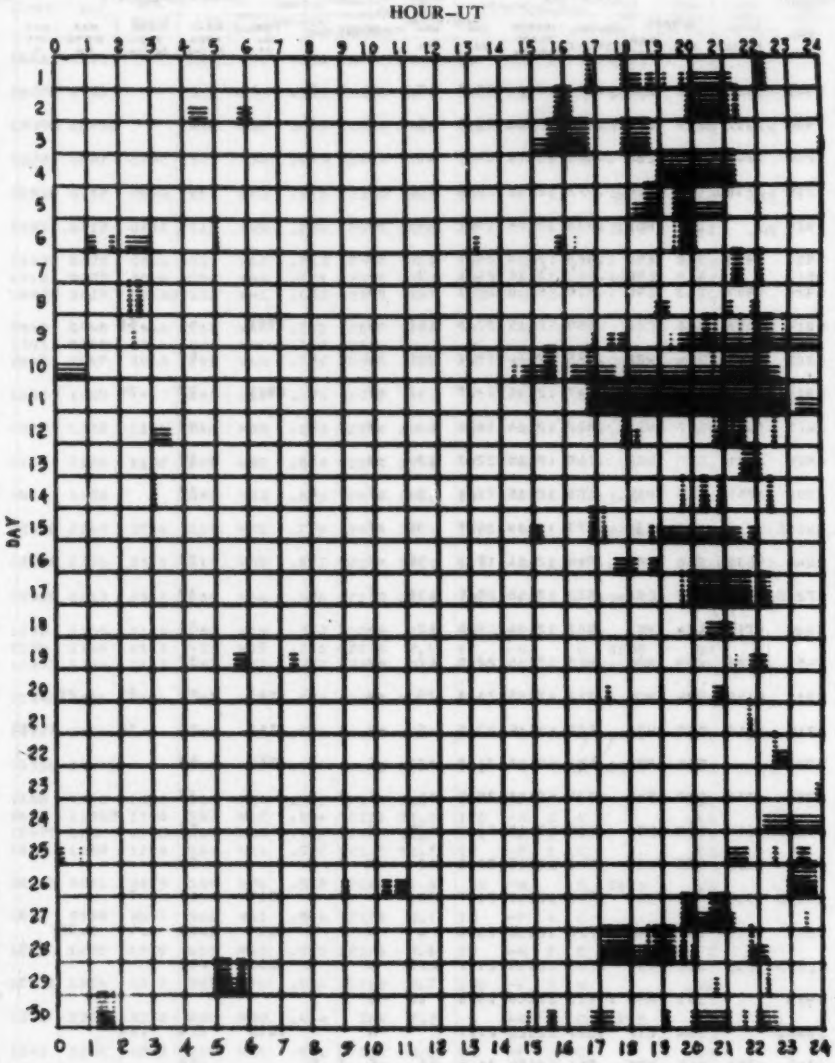
SOLAR FLARES
Unconfirmed
NOVEMBER 1972

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE NOV	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Deg	MAX. INT. %	
816 ATHN	16	0913	0931	0917	S13	E90	1.000	12116	23.1	18	-F	2	C						DE 5
817 TEHR	17	0900	0906	0902	S10	E86	.998	12116	23.8	6	-N	3	C		.28				F 5
818 ATHN	17	1242	1255	1245	S08	E88	1.000	12116	24.1	13	-N	2	C						DE 4
820 PALE	17	2229E	2235	2230U	S07	E76	.972	12116	23.6	6D	-F	3	V		.52				F 4
823 ISTA	19	0730	0814		S17	W01	.333	12114	19.2	44	-F								4
GRP46824	19	0905	0917	0909	S12	E90	1.000	12118	26.1	12	-N								2 2 8 8
ISTA	19	0905	0913		S10	E90	1.000	12118	26.1	8	-N								
ATHN	19	0908E	0920	0909	S13	E90	1.000	12118	26.1	12D	-N	2	V						DE
833 MANI	19	2358E	0014	2358	S08	E31	.539	12115	22.3	16D	-N	1		2358	.41	.50			3
839 PALE	21	0142E	0202	0143U	S14	W22	.456	12114	19.4	20D	-N	2	V		.57				F 5
840 ARCE	21	0915E	0919D		S17	W36	.647	12114	18.7	4D	-F		C	0915	.12	.20			5
850 TEHR	22	0418	0430	0420	S17	W51	.807	12114	18.4	12	-N	2	C		.45				DE 6
853 TEHR	22	0917	0929	0921	S07	W03	.165	12115	22.2	12	-N	4	V		1.82				F 4
857 RAMY	22	1250	1308	1255	S05	W05	.150	12115	22.2	18	-F	3	C		.37				DE 4
865 SIBE	23	0459E	0508D		S10	E33	.573	12118	25.7	9D	-F		V						CDL 6
866 ATHN	23	0635E	0644	0635U	S08	W80	.986	12111	17.3	9D	-F	2	V		.33				DE 5
867 ATHN	23	0710E	0721D	0712	S10	E30	.532	12118	25.5	11D	-F	1	C		.33				DE 4
868 TEHR	23	0754	0806	0757	S14	WE3	.902	12114	18.6	12	-N	2	V		.33				DE 5
875 RAMY	23	1434	1451	1435	S09	W21	.400	12115	22.0	17	-N	3	C		.37				DE 4
880 KODA	24	0142	0211	0142	S06	W30	.514	12115	21.8	29	-N		C	0143	1.52	1.50	1.20		D 5
881 CATA	24	0710	0715	0710	S07	W31	.532	12115	22.0	5	-N	2	C	0710	.29	.34		(166)	7
882 UPIC	24	0853E	0903		S06	W34	.571	12115	21.8	10D	-F		P	0853	.63				10
884 RAMY	24	1335	1351	1338	S12	E13	.324	12118	25.5	16	-F	2	C		.37				DE 6
886 PALE	24	2023E	2036D	2024	S06	W39	.639	12115	21.9	13D	-N	3	V		.77				3
889 PALE	25	0022	0032	0026	S05	W32	.540	12115	22.6	10	-N	2	V		.62				F 3
891 MITK	25	0512	0532D	0517	S07	W47	.740	12115	21.7	20D	-N		C	0517	1.13	1.70			D 6
892 KODA	25	0619	0623	0619	S07	W45	.716	12115	21.9	4	-N		V	0619	1.39	1.40	1.36		D 7
896 MONT	25	1213	1235D	1235	S05	W51	.781	12115	21.7	22D	-N		C	1235	.41				6
903 CAPS	26	0911E	0919		S09	W90	1.000	12114	19.6	8D	-B		V						C 3
904 ARCE	26	1000E	1000D		S04	E17	.307	12126	27.7		-N		P	1000	.19	.20			5
905 RAMY	26	1252	1303	1253	N15	W28	.511	12124	24.4	11	-F	3	C		.19				DE 6
909 CATA	27	1205	1225	1205	S05	W53	.802	12116	23.5	20	-N	3	C	1205	.58	.97		(151)	10
913 PALE	27	2320E	2323D	2322U	S10	E10	.261	12126	28.7	3D	-F	2	V		.26				3
914 MANI	28	0321	0336	0330	S10	W40	.661	12118	25.1	15	-F	2		0330	.41	.55			6
916 ISTA	28	1048	1105		S11	W41	.677	12118	25.4	17	-F								E 10
918 ATHN	29	0720E	0730	0722	N20	E52	.811	12127	3.2	10D	-N	3	V		.66				F 5
921 ISTA	30	0853	0912	0900	S17	W24	.496	12126	28.6	19	-N								6
923 UPIC	30	1028E	1044	1032	S17	W26	.520	12126	28.5	16D	-N		P	1032	1.85				F 2
928 PALE	30	1945E	1954	1946	S16	W30	.562	12126	28.6	9D	-F	3	V		.41				F 3

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

NOVEMBER 1972



Observatories included in total patrol:

Abastumani	Carnarvon	Istanboul	Meudon	Siberie
Arcetri	Catania	Kharkov	Mitaka	Tachkent
Athenes	Culgoora	Kiev	Monte Mario	Tehran
Boulder	Gran Canaria	Kodaikanal	Ondrejov	Upice
Bucharest	Herstmonceux	Locarno	Palehua	Voroshilov
Capri-S (Swedish)	Huancayo	McMath-Hulbert	Ramey	Wendelstein
Capri-F (German)				

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

NOVEMBER 1972

NOV. 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
1	3750	TYKW	20	0045	0106	50	5.0	2.0		
	2000	TYKW	45	0055	0103	45	3.0	1.0		
	100	HIRA	6	0124.7	0124.8	1.6	80.0	30.0		
	100	HIRA	6	0238	0238.2	.8	100.0	50.0		
	100	HIRA	6	0240.2	0240.8	1.5	110.0	50.0		
	606	MANI	41	0241.2	0245.5	6.3	38.2	2.5		
	200	HIRA	6	0241.8	0242	.6	2400.0	210.0		
	100	HIRA	6	0241.8	0242.2	1.5	200.0	80.0		
	500	HIRA	5	0242	0242.2	.7	20.0	3.0		
	4995	CRON	3	0244.5	0246	3	7.0	2.0		
	9750	IRKU	1	0245.4	0246.2	2.5	10.0	5.0		
	9400	TYKW	1	0245	0246	5	10.0	3.0		
	1000	TYKW	3	0245.5	0246.3	1.5	19.0	4.0		
	500	HIRA	5	0245.5	0246.2	1	20.0	10.0		
	100	HIRA	6	0246.5U	0246.5U	1 D	140.0U	50.0U		
	3750	TYKW	20	0400	0416	40	4.0	2.0		
	100	HIRA	6	0454	0454.3	1.4	130.0	60.0		
	200	GORK	44	0524 E		450 D		10.0		
	100	GORK	44	0524 E		450 D		5.0		
	221	ABST	41	0700	0908.5	240	25.0			
	100	HIRA	6	0606.4	0606.7	1	60.0	30.0		
	100	HIRA	6	0620.7	0621.3	1	60.0	20.0		
	4995	CRON	8	0631.5	0641.5	42.5	277.0	98.0		
	3100	CRIM	3	0635	0641	65	70.0	20.0		
	9400	TYKW	20	0637	0641.7	15	450.0	40.0		
	3750	TYKW	20	0637	0641.7	20	150.0	15.0		
	2695	CRON	8	0637	0641	21.5	66.0	22.0		
	9750	IRKU	3	0638	0641.7	22	380.0			
	9100	GORK	4	0639.5	0641.5	9.7	299.0	55.0		
	2000	TYKW	45	0640	0641.8	6	67.0	10.0		
	1420	CRON	8	0640.5	0642	3.5	18.0	6.0		
	1000	TYKW	45	0640	0641.7	6	11.0	2.0		
	950	GORK	1	0640.6	0641.7	2.8	4.3	.2		
	650	GORK	1	0640.7	0641.6	2	5.0	2.5		
	100	HIRA	6	0643.5	0644	1	50.0	30.0		
	100	HIRA	6	0653	0653.4	1	50.0	20.0		
	410	SGMR	44	1122 E	1710.6	609 D	8.6			
	245	SGMR	44	1122 E	1533.8	609 D	114.0			
	100	HIRA	6	0706.5	0706.8	1	80.0	40.0		
	9750	IRKU	1	0714.6	0715	1.5	12.0	5.0		
	9100	GORK	1	0714.8	0715	1.5	21.0	10.0		
	1415	MANI	2	0714.7	0715.6	3.3	6.1	1.0		
	606	MANI	4	0714.5	0715.5	3.3	10.2	2.4		
	234	POTS	45	0714.8	0715	.6	5700.0	1000.0		
	210	IZMI	48	0714.9	0715	1	4400.0	1500.0		
	200	GORK	6	0714.7		.9	100.0D			
	100	HIRA	6	0714.5	0715	2	250.0	120.0		
	100	GORK	6	0714.8		.9	100.0D			
	23	POTS	45	0714.8	0714.9	1.1	70000.0	1500.0		
	1000	TYKW	8	0715	0715.3	1	13.0	3.0		
	950	GORK	3	0715.2	0715.6	2.8	12.5	6.0		
	650	GORK	4	0715	0715.4	1.3	10.0			
	200	HIRA	6	0715	0715	1	2900.0	1500.0		
	100	HIRA	6	0717.3	0717.5	.7	90.0	50.0		
	100	HIRA	6	0720.5	0721	1.2	120.0	50.0		
	234	POTS	45	0741.6	0741.7	.1	150.0	30.0		
	4995	CANR	3	0743	0745	4	19.0	6.0		
	2695	CANR	45	0743.5	0745.5	3	14.0	5.0		
	3100	CRIM	20	0758	0826	82	5.0	2.0		
	4995	CANR	3	0759	0800.5	2.5	12.0	3.0		
	2695	CANR	3	0759.5	0801.5	2.5	6.0	2.0		
	234	POTS	40	0759.5	0801.5	2.2	2300.0	60.0		
	200	GORK	41	0759.2	0800.1	2.6	100.0D			
	200	GORK		0759.2	0801.5		100.0D			
	100	GORK	41	0759.4	0759.6	3.4	100.0D			
	100	GORK		0759.4	0801.6U		100.0D			
	29	UPIC	45	0759		3.5				
	23	POTS	40	0759.1	0801.4	6.4	90000.0	4500.0		
	1420	CANR	3	0800.5	0802	2.5	7.0	2.0		
	225	HARS	5	0801	0801.5	1	165.0D	40.0		
	210	IZMI	48	0801.2	0801.7	.8	2700.0	900.0		
	4995	CANR	3	0814	0814	3	12.0	4.0		
	4995	CANR	3	0904	0905.5	4	7.0	2.0		
	4995	CRON	3	0904.5	0905.5	4.5	6.0	2.0		
	2695	CRON	3	0904.5	0905.5	4	7.0	2.0		
	1420	CRON	3	0904.5	0905.5	2	2.0	1.0		
	9100	GORK	1	0905.4	0906	1.6	5.0	2.5		
	3100	CRIM	3	0905	0907	8	11.0	4.0		
	3000	BERL	3	0905	0906	9.2	7.3	2.2		
	2695	CANR	3	0905	0905.5	5.5	9.0	3.0		
	23	POTS	5	0911.7	0912.2	.9	8000.0	2500.0		
	29	UPIC	45	0942	0947	7				
	23	POTS	40	0942.6	0947	5.9	6000.0	300.0		
	408	TRST	42	0944.5	0946.8	4.3	60.0			
	234	POTS	40	0944.5	0947.3	4	150.0	1.0E		
	100	GORK	41	0945.4	0947.1	2.6	80.0			
	100	GORK		0945.4	0947.4		100.0			
	950	GORK	1	0946.9	0947.5	1.1	1.9	0.9		
	650	GORK	2	0946.7	0946.9	2.1	3.5			
	237	TRST	42	0946.4	0947.2	1.6	420.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

NOVEMBER 1972

NOV 1972	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	225	HARS	5	0946.5	0947	1	350.0	70.0		
	210	IZMI	41	0946.4	0947.8	1.6	200.0			
	200	GORK	6	0946.4	0947.7	1.6	200.0			
	237	TRST	41	1035	1035.1	.9	370.0			
	23	POTS	45	1039.6	1039.8	.5	10000.0	2000.0		
	9500	BERL	22	1202	1226.4	47	15.0			
	3000	BERL	20	1208.5	1226.4	32	4.6			
	2695	CANR	3	1221.5	1223.5	2.5	3.0	1.0		
	4995	CANR	21	1225	1226.5	10.5	9.0	3.0		
	9400	HUAN	20	1248	1305.7	27.5	11.4	3.0		
	2800	OTTA	20	1250	1300	60	4.2	2.1		
	606	SGMR	4	1303.9	1305.5	4.6	17.1	6.4		
	410	SGMR	6	1303.9	1305.4	4.3	20.2	8.1		
	245	SGMR	6	1303.9	1305.3	4.6	162.0	60.0		
	4995	CANR	3	1304.5	1305	3	6.0	2.0		
	3000	BERL	45	1304.9	1305.7	1.8	12.0	2.2		
	2695	SGMR	4	1304.8U	1305.8	2.2U	26.8	10.2		
	1415	SGMR	4	1304.3	1306.3	5.4	38.9	5.8		
	237	TRST	42	1304.5	1305.2	2.5	460.0U			
	29	UPIC	45	1304	1305	3				
	23	POTS	45	1304.2	1306.7	4.2	25000.0	250.0		
	9500	BERL	2	1305.3	1305.7	2.6	6.5	3.3		
	9285	ARCE	1	1305.3	1305.6	3				
	2700	PENN	8	1305.6	1305.8	.4	40.6			
	2695	CANR	45	1305	1305.5	2.5	31.0	12.0		
	1500	BERL	4	1305.4	1306.4	1.6	14.0	1.7		
	1420	CANR	45	1305.5	1306.5	3	33.0	6.0		
	1420	ARCE	2	1305.4	1306.3	1.5				
	960	PENN	45	1305.2	1305.9	2.4	4.3	0.9		
	234	POTS	45	1305.1	1305.4	1.7	250.0	5.0		
	225	HARS	45	1305	1306	2	350.0	110.0		
	4995	CANR	3	1313	1314	2.5	4.0	1.0		
	4995	CANR	3	1336.5	1337.5	4	5.0	2.0		
	4995	CANR	3	1401.5	1403.5	6.5	10.0	3.0		
	9400	HUAN	1	1402.4	1404.1	2.9	11.4	5.2		
	23	POTS	5	1406	1406	.4	10000.0	3000.0		
	8800	SGMR	1	1449.3	1450.7	4.5	8.6	4.3		
	4995	SGMR	1	1450.5	1450.7	.4	2.6	1.3		
	4995	CANR	3	1543	1543.5	2.5	5.0	1.0		
	2800	OTTA	20	1714	1714.5	20	1.8	1.2		
	2800	OTTA	21	1835	1837	115	2.4	1.2		
	2700	PENN	20	1836.4	1848.3	18.3	6.8	3.4		
	2800	OTTA	20	1844	1848	11	3.2	1.6		
	960	PENN	40	1844.2		5.4				
	2800	OTTA	21	2055	2115	35	2.4	1.2		
	9400	HUAN	1	2107.2	2108.8	4.6	11.4	3.1		
	960	PENN	45	2107.6	2110.5	4	25.0	3.3		
	10700	PENN	1	2109.4	2110	1.2	7.8	3.5		
	4995	BOUL	8	2109	2110	2.5	15.0	4.0		
	2800	OTTA	3	2109.4	2110.4	3	13.0	5.0		
	2700	PENN	3	2109.4	2110.3	1.8	17.2	11.4		
	2695	SGMR	46	2109.7	2110.3	1.8	10.6	3.0		
	1420	BOUL	8	2109	2110.5	3.5	7.0	2.0		
	606	SGMR	46	2109.5	2110.8	2.3	19.4	4.0		
	410	SGMR	6	2109.8	2110.2	2.4	2.2	1.0		
	2695	BOUL	3	2110	2112.5	5.5	14.0	4.0		
	1415	SGMR	4	2110	2110.2	1.5	5.1	2.0		
	100	MIRA	6	2139	2139.6	1	140.0	70.0		
2	3750	TYKW	20	0050	0057	50	4.0	2.0		
	3750	TYKW	1	0116	0117.3	4	5.0	2.0		
	9400	TYKW	1	0241	0241.3	1	6.0	2.0		
	3750	TYKW	1	0241	0241.3	1	3.0	1.0		
	2000	TYKW	1	0241	0241.4	1	2.0	1.0		
	200	GORK	44	0522 E		30		5.0		
	950	GORK	41	0645.6	0645.6	1.6	4.5	2.0		
	950	GORK		0645.6	0646.5		1.3	0.6		
	4995	MANI	3	0648.7	0650.8	5.3	33.4	7.3		
	4995	CRON	8	0648.5	0650	3	29.0	10.0		
	8800	MANI	3	0649.6	0650.8	4.4	22.5	6.8		
	2695	CRON	8	0649	0650	3	14.0	4.0		
	9750	IRKU	1	0650.2	0651	2.5	15.0	6.0		
	9400	TYKW	3	0650.5	0651	2.5	16.0	5.0		
	9100	GORK	1	0650.3	0651.3	2.3	18.4	9.2		
	3750	TYKW	3	0650.5	0651.1	2	21.0	6.0		
	3100	CRIM	41	0650	0652	18	14.0	5.0		
	3100	CRIM		0650	0701		10.0	3.0		
	2950	GORK	21	0650.1	0702.4	6.4	8.8	4.4		
	2950	GORK	3	0650.7	0651.2	1.1	18.5	9.2		
	2695	MANI	1	0650.4	0650.8	2.3	12.5	2.5		
	2000	TYKW	1	0650.5	0651.1	2.5	6.0	2.0		
	1420	CRON	8	0650	0651	2	4.0	1.0		
	1415	MANI	1	0650.3	0650.8	1.9	3.8	9.5		
	1000	TYKW	1	0650.5	0651	1	2.0	1.0		
	950	GORK	1	0650.2	0651.3	2	2.2	1.0		
	650	GORK	4	0650.1	0651	2.2	6.5			
	606	MANI	1	0650.4	0650.8	1.7	5.3	1.3		
	4995	CRON	3	0659	0701	5.5	11.0	3.0		
	2695	CRON	8	0659.5	0700	1	10.0	4.0		
	9400	TYKW	1	0700	0701	2	5.0	2.0		

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	3750	TYKW	1	0700	0701	2	8.0	3.0		
	2000	TYKW	1	0700	0700.9	2	5.0	2.0		
	2950	GORK	1	0701	0701.1	.5	7.2	3.6		
	237	TRST	41	0821.9	0823.2	1.6	120.0U			
	10500	BERN	1	0833.7	0834.6	6	9.0			
	9100	GORK	1	0834	0834.9	4.2	10.0	5.0		
	237	TRST	41	0848.8	0849	.6	150.0D			
	3100	CRIM	20	0955	1004	30	3.0	1.0		
	3000	BERL	2	1009.5	1011.4	3	5.6	1.4		
	9500	BERL	2	1010.8	1011.2	1.7	3.2			
	4995	CANR	3	1010	1011	3.5	8.0	2.0		
	3100	CRIM	3	1010	1011	4	8.0	3.0		
	2950	GORK	21	1010.3	1019.5	17.3	5.7	2.5		
	2950	GORK	1	1011	1011.4	1.4	4.9	2.4		
	2695	CANR	3	1011	1011.5	2	4.0	1.0		
	245	SGMR	44	1123 E	1915.4	607 D	63.0			
	3100	CRIM	20	1130	1143	30	6.0	2.0		
	2695	CANR	21	1151	1153.5	30.5	5.0	2.0		
	2695	CANR	28	1234	1236.5	19.5	10.0	3.0		
	9500	BERL	2	1235	1237.5	16	8.1			
	3000	BERL	2	1235	1236.4	13	5.6	2.1		
	1500	BERL	1	1235.8	1236.2	1.6	1.6	0.5		
	4995	CANR	3	1243.5	1244.5	4	6.0	2.0		
	3000	BERL	20	1312.5	1318.4	6.5	2.9			
	1420	CANR	8	1312	1315	5	33.0	13.0		
	1415	SGMR	4	1312.4	1314.5	7.7	40.1	16.0		
	9285	ARCE	20	1313.7	1314.9	5				
	4995	SGMR	1	1313.2	1315.4	7.1	3.0	1.5		
	2695	SGMR	1	1313.2	1315.3	6.5	3.0	1.5		
	2695	CANR	3	1313.5	1314	2.5	3.0	1.0		
	1500	BERL	4	1313	1314.4	4	33.0	7.7		
	1420	ARCE	4	1313.2	1314.5	2				
	1420	CANR	8	1404	1404.5	1	4.0	1.0		
	2695	CANR	3	1433.5	1434.5	3	2.0	1.0		
	237	TRST	41	1445	1445.1	.9	31.0U			
	237	TRST	41	1454.3	1454.6	.3	35.0			
	18	MCMA	6	1530	1532	4			1	
	18	MCMA	41	1611	1613	7			1	
	2800	OTTA	21	1630	1640	25	4.0	2.0		
	9400	HUAN	21	1633.1	1638.8	20.3	7.5	3.7		
	10700	PENN	3	1636.9	1637.5	3	39.1	9.2		
	9400	HUAN	4	1636.6	1637.2	1.5	41.2	16.9		
	7000	SAOP	3	1637	1637.4	1.6	23.5	11.8		
	2800	OTTA	1	1637	1637.2	1	6.2	3.1		
	2700	PENN	20	1637	1637.3	13.4	10.1	2.0		
	2695	CANR	8	1637	1637.5	1	8.0	2.0		
	4995	BOUL	8	1638	1638.5	1	14.0	4.0		
	2695	BOUL	8	1638.5	1639	1.5	7.0	2.0		
	2800	OTTA	20	1700	1705	70	2.6	1.3		
	18	MCMA	42	1703	1708	10			1	
	18	MCMA	6	1749	1752	9			3	
	245	BOUL	42	1803	1815	39			1	
	18	MCMA	41	1804	1807	5			1	
	18	MCMA	41	1817	1826	13			2	
	9400	HUAN	22	1825.3	1949.5	125	19.0	5.1		
3	200	HIRA	6	0213.2	0214.8	1.5	130.0	30.0		
	100	HIRA	6	0205.4	0206.7	2.3	110.0	30.0		
	1420	CRON	8	0206	0206.5	2	6.0	2.0		
	2695	CANR	3	0824	0825.5	2.5	5.0	2.0		
	4995	CRON	3	0858.5	0900	3	8.0	3.0		
	408	TRST	41	0923.4	0923.5	1.6	63.0			
	221	ABST	1	1016.2	1017.2	1	21.0			
	9500	BERL	20	1100	1119.3	37	5.1			
	1500	BERL	20	1100	1117.5	35	1.6			
	3000	BERL	20	1102.5	1111.7	21	2.3			
	245	SGMR	44	1124 E	1530.8	605 D	16.8			
	1420	CANR	8	1128.5	1129	1.5	9.0	4.0		
	9285	ARCE	3	1144.6	1146.4	4.7				
	1420	ARCE	4	1144.8	1146.2	2.5				
	9285	ARCE	29	1149.3		72				
	3000	BERL	1	1218.5	1221.7	6.3	3.4	1.1		
	3000	BERL	4	1238.5	1246.1	29	57.0	6.9		
	2695	CANR	8	1241.5	1246.5	33	56.0	16.0		
	10700	PENN	3	1243.6	1246.4	4.4	176.0	47.5		
	7000	SAOP	3	1243.8	1246.5	4	260.5	96.1		
	4995	CANR	8	1243.5	1246.5	24	85.0	24.0		
	2800	OTTA	3	1243	1246.3	7	58.0	21.0		
	1415	SGMR	47	1243.9	1246.2	7.1	500.0	120.0		
	15400	SGMR	4	1244.8	1246.2	6	69.0	28.0		
	9500	BERL	4	1244	1245.7	47	158.0	16.0		
	9400	HUAN	3	1244.1	1246.1	5.7	186.2	67.5		
	9400	SLOU	3	1244.8	1246.5	5	178.0			
	9100	GORK	4	1244.5	1246.4	8.9	175.0	30.0		
	8800	SGMR	4	1244.5	1246.4	14.9	145.0	60.0		
	4995	SGMR	4	1244.2	1246.3	14.1	110.0	45.0		
	2700	PENN	3	1244	1246.4	4	95.8	36.7		
	2695	SGMR	4	1244.4	1246.3	13.6	44.0	15.0		
	1500	BERL	4	1244	1247	12	344.0	66.0		
	19000	SLOU	4	1245	1246.3	2.5	54.0			

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	10500	BERN	3	1245.1	1246.3	30	93.0			
	1420	CANR	47	1245.5	1246.5	2.5	514.0	159.0		
	960	PENN	8	1246.2	1246.5	.5	4.1			
	7000	SAOP	29	1247.8		44.1				
	10700	PENN	29	1248	1248	122	34.2	10.0		
	2700	PENN	29	1248	1248	65.6	26.6	13.3		
	9400	HUAN	29	1249.8	1249.8	35.7	29.8	12.1		
	2800	OTTA	29	1250		55	10.8	3.6		
	2800	OTTA	20	1535	1540	35	4.2	1.4		
	2700	PENN	20	1537.2	1540.8	32.2	10.9	5.5		
	4995	CANR	45	1538.5	1542.5	7.5	11.0	3.0		
	2695	BOUL	45	1539.5	1541.5	9	4.0	1.0		
	4995	BOUL	45	1540	1541	8	13.0	3.0		
	2800	OTTA	1	1755.8	1756.2	1	1.4	0.7		
	3750	TYKW	3	2243	2248	8	14.0	5.0		
	4995	CRON	3	2245.5	2247.5	5.5	13.0	3.0		
	2695	PENT	22	2246.9	2247.8	3.1	8.6	2.2		
	2695	CRON	3	2246	2247.5	5	10.0	3.0		
	4995	BOUL	3	2247	2249.5	5	11.0	4.0		
	2695	BOUL	8	2247.5	2250	5	11.0	3.0		
	2000	TYKW	1	2247	2247.8	2	3.0	1.0		
	3750	TYKW	29	2251		120	6.0	3.0		
	1420	CRON	3	2331.5	2332.5	2.5	5.0	2.0		
4	3750	TYKW	1	0119	0120	10	1.0	.5		
	2695	CRON	3	0132	0133	4	6.0	2.0		
	1420	CRON	8	0132.5	0134	2.5	8.0	3.0		
	3750	TYKW	1	0133	0134.4	3	4.0	1.0		
	2000	TYKW	1	0134	0134.2	1	4.0	1.0		
	1000	TYKW	1	0134	0134.2	1.5	2.0	1.0		
	3750	TYKW	1	0228	0228.7	1.5	2.0	1.0		
	2000	TYKW	8	0228.5	0228.7	.5	50.0	10.0		
	4995	CRON	3	0248	0250	6	9.0	2.0		
	3750	TYKW	1	0249	0250.8	10	5.0	2.0		
	3000	BERL	20	1121	1129.4	24	2.9			
	1500	BERL	4	1127.7	1128.4	1.8	7.7	2.1		
	1415	SGMR	8	1555.6	1555.7	.5	89.0	25.0		
	606	SGMR	8	1555.6	1555.7	.2	37.4	9.0		
	410	SGMR	6	1555.4	1558	3.2	12.7	3.0		
	245	SGMR	6	1555.3	1555.6	3.3	30.0	8.0		
	245	SGMR	6	1600.6	1602.8	2.6	10.0	3.0		
	410	SGMR	6	1601.3	1601.5	1.5	2.5	1.0		
	1415	SGMR	4	1602.2	1602.8	1	22.0	5.0		
	606	SGMR	3	1602.5	1602.6	.3	17.1	4.0		
5	3750	TYKW	1	0530	0531.2	3	3.0	1.0		
	237	TRST	45	1116	1116.1	.4	40.0D			
	4995	CANR	8	1321.5	1322	1.5	13.0	5.0		
	8800	SGMR	1	1322.5	1322.6	.9	7.8	3.8		
	4995	SGMR	3	1322.1	1322.6	2.1	12.1	5.0		
6	18	MCMA	42	1237	1245	14			1	
	18	MCMA	42	1309	1335	67			1	
7	100	HIRA	5	0657.3	0657.3	.7	120.0	50.0		
8	2695	SGMR	1	1257.1	1257.4	1.3	5.7	1.4		
	1415	SGMR	46	1257.1	1257.3	1.2	28.6	7.2		
	606	SGMR	46	1257.2	1257.4	1	11.4	2.9		
	410	SGMR	6	1257.2	1257.4	.9	.4	.1		
	245	SGMR	6	1257.2	1258	1.1	2.4	.6		
10	100	HIRA	5	0253.5	0253.6	.5	150.0	70.0		
	204	KIEV	48	0700 E	0738	60	25.0			
	4995	CANR	3	0819	0820	3	8.0	3.0		
	2695	CANR	3	0819.5	0820.5	3.5	3.0	1.0		
	1420	CANR	3	0820	0821	3.5	2.0	1.0		
	18	MCMA	41	1709	1714	7			1	
11	204	KIEV	42	0700 E		360 D	13.0			
	221	ABST	3	0756.2	0756.8	1.8	93.0	13.0		
	2800	OTTA	20	1730	1810	95	1.4	0.7		
	9400	HUAN	20	1855.1	1909.2	26	9.4	3.9		
12	4995	CANR	3	0747	0748	1.5	12.0	4.0		
	2695	CANR	3	0748	0748.5	1.5	4.0	1.0		
	1420	CANR	3	0748.5	0749	1.5	5.0	2.0		
	4995	CANR	3	0756.5	0757.5	2.5	10.0	3.0		
	2695	CANR	3	0756.5	0758.5	3.5	4.0	1.0		
	1420	CANR	3	0756	0759	3	5.0	2.0		
	9285	ARCE	22	1455.4	1457.1	11.7				
	2830	ARCE	22	1455.6	1456.7	11.3				
	1420	ARCE	22	1455.6	1457.2	11.4				
14	9400	HUAN	26	1527.7	1611.7	216.2	32.1	19.5		
	4995	CANR	8	1709.5	1710.5	1.5	9.0	3.0		
	2695	CANR	3	1710	1711	1.5	4.0	1.0		
	1420	CANR	3	1710.5	1711.5	2.5	3.0	1.0		
	4995	CANR	3	1738	1739.5	2.5	6.0	2.0		
	2695	CANR	3	1738.5	1739.5	3	3.0	1.0		

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16	221	ABST	41	0721.2	0819.5	85	12.0			
	3100	CRIM	20	0850		180	5.0	2.0		
	9285	ARCE	2	1331.2	1331.6	1.5				
	2830	ARCE	1	1331.2	1331.5	.5				
17	9285	ARCE	1	1022.4	1022.6	1.5				
	2830	ARCE	1	1023	1023.2	.5				
	210	IZMI	6	1150.2	1150.6	.4	400.0	220.0		
18	18	BOUL	41	1450	1453	6			1	
	18	MCMA	41	1501	1502	5			1	
	4995	CANR	3	1739.5	1741	2	9.0	3.0		
	2695	CANR	3	1740	1741.5	1.5	4.0	1.0		
	1420	CANR	3	1741.5	1742.5	2	3.0	1.0		
19	4995	CANR	8	1642.5	1643	2.5	14.0	6.0		
	2695	CANR	3	1642.5	1643.5	3	9.0	3.0		
	1420	CANR	3	1644	1645	2.5	3.0	1.0		
	1420	CANR	8	1727.5	1729.5	2.5	24.0	8.0		
	2695	CANR	8	1728	1729	1.5	13.0	4.0		
	4995	CANR	3	1731	1731.5	1.5	10.0	3.0		
	2695	CANR	8	1731.5	1732.5	1.5	16.0	5.0		
	1420	CANR	8	1731.5	1732	1.5	14.0	4.0		
20	4995	CANR	45	0740.5	0743	3	33.0	10.0		
	2695	CANR	45	0740	0743.5	4	26.0	8.0		
	1420	CANR	45	0741	0744.5	4.5	9.0	3.0		
	4995	CANR	45	0756.5	0758	3.5	7.0	3.0		
	2695	CANR	3	0757	0759.5	4.5	6.0	2.0		
	1420	CANR	3	0757.5	0759.5	5	4.0	1.0		
	4995	CANR	3	0816.5	0817.5	2	9.0	3.0		
	2695	CANR	3	0817.5	0818	2.5	4.0	1.0		
	1420	CANR	3	0817.5	0819	2	3.0	1.0		
	410	SGMR	44	1146 E	1318.3	565 D	11.6			
	245	SGMR	44	1146 E	1254.3	565 D	16.2			
	204	KIEV	42	1235		60 D	13.0			
	245	BOUL	42	1436	1437	27			1	
	3100	CRIM	1	1224	1225	2	3.0	1.0		
	2800	OTTA	20	1600	1625	75	1.6	0.8		
	2700	PENN	24	1632.6	1932.4		13.3			
	2800	OTTA	8	1934.5	1934.5		1.0			
21	237	TRST	41	0910.7	0910.8	.5	42.0U			
	210	IZMI	6	0910.5	0910.8	.5	84.0	50.0		
	200	GORK	6	0910.6	0910.8	.5	65.0			
	100	GORK	6	0910.8	0911 U	.7	150.0D			
	113	POTS	45	0911.8	0911.9	.1	350.0	20.0		
	2800	OTTA	21	1325	1328	11	2.2	1.1		
	2800	OTTA	8	1327.5	1327.5	.5	1.2			
	2700	PENN	1	1433	1433.1	1	1.7	1.0		
	960	PENN	8	1433	1433.1	.2	5.3			
	2800	OTTA	20	1605	1755	220	3.8	1.9		
	960	PENN	45	1614.7	1615.5	2.2	55.8	2.3		
	2700	PENN	1	1615.3	1615.7	1	3.0	0.8		
	960	PENN	41	1617.7	1617.9	2.2	50.4			
	2700	PENN	8	1618.5	1618.5	.3	8.2			
	2700	PENN	20	1638.6	1709.8	124	5.2	2.6		
	2800	OTTA	1	1947	1950	7	2.0	1.0		
	2700	PENN	20	1947.5	1950.3	11.7	4.2	2.1		
22	29	UPIC	45	0739		5				
	2695	CANR	3	0742	0742.5	2	4.0	1.0		
	1420	CANR	3	0743	0743.5	2.5	4.0	1.0		
	606	MANI	40	0751.4	0759.4	39.6	106.0	4.2		
	3000	BERL	46	0756.7	0801.8	12	9.7	2.9		
	1420	CRON	45	0757.5	0759	9.5	8.0	2.0		
	1415	MANI	40	0757.3	0801.6	5.8	11.6	1.9		
	2695	CRON	45	0758.5	0801.5	8.5	10.0	3.0		
	950	GORK	40	0758.6	0807	7.3	10.8			
	650	GORK	40	0758.7	0759.7	7.3	18.0			
	200	GORK	41	0758.8	0759.3	7.2	50.0			
	200	GORK		0758.8	0803.4		40.0			
	200	GORK		0758.8	0804.1		45.0			
	100	GORK	41	0758.2	0759.8	10.9	70.0D			
	100	GORK		0758.2	0803.9		1500.0			
	100	GORK		0758.2	0806.4		200.0			
	1500	BERL	46	0759	0801.7	3.6	5.7	1.5		
	1420	CANR	3	0759.5	0802.5	6.5	2.0	1.0		
	237	TRST	41	0759 E	0803.2	7 D	82.0			
	113	POTS	45	0759	0805	14 U	1750.0	60.0		
	8800	MANI	4	0800.4	0801.7	8.1	12.8	4.3		
	4995	CANR	45	0800	0801	4.5	15.0	3.0		
	4995	MANI	4	0800.4	0801.7	8.1	24.7	5.2		
	4995	CRON	45	0800.5	0801.5	8	13.0	3.0		
	3100	CRIM	41	0800	0802	5	9.0	3.0		
	3100	CRIM		0800	0803		7.0			
	3100	CRIM		0800	0804		7.0			
	2695	MANI	2	0800.4	0802.2	8.1	7.0	1.7		
	2695	CANR	45	0800.5	0801.5	5.5	7.0	2.0		
	9500	BERL	22	0801.4	0802.4	12	7.5	3.0		

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	9100	GORK	20	0801.2	0804.2	18.3	16.6	6.6		
	210	IZMI	41	0803	0817.7	15	160.0			
	237	TRST	41	0814.9	0815	.4	120.0D			
	200	GORK	44	0815		46		5.0		
	221	ABST	1	0819.2	0819.5	.7	3.0			
	1420	CANR	3	0928	0936	9	7.0	2.0		
	3100	CRIM	3	0929	0932	64	27.0	9.0		
	2695	CANR	3	0930	0933	11	20.0	7.0		
	2695	CRON	3	0930.5	0933	4	21.0	8.0		
	1420	CRON	3	0930.5	0934	4.5	7.0	3.0		
	3000	BERL	4	0931	0933.5	5	17.0	5.8		
	1500	BERL	4	0931.5	0933.5	6.5	6.1	2.3		
	3000	BERL	22	0955.5	1001.2	8.5	2.7	0.9		
	1500	BERL	4	1000	1002.5	4	3.9	1.0		
	237	TRST	41	1000.2	1000.7	2.1	70.0			
	210	IZMI	41	1000	1001	2.5	200.0D			
	29	UPIC	45	1000	1001	3				
	1420	CANR	8	1002	1003	2	7.0	3.0		
	1500	BERL	22	1009.5	1019	11	1.7	0.3		
	3000	BERL	22	1010	1015.4	13	3.6	0.9		
	237	TRST	45	1012.5	1012.6	.4	130.0D			
	408	TRST	5	1014.3	1014.4	.3	62.0	18.0		
	221	ABST	1	1021.2	1021.8	.5	16.0			
	237	TRST	42	1204.2	1206.2	3.6	34.0U			
	237	TRST	42	1239.8	1239.9	9.3	36.0D			
	237	TRST		1239.8	1246.9		27.0			
	960	PENN	1	1320.9	1323	8.6	2.1	0.5		
	2800	OTTA	21	1415	1430	45	1.8	0.9		
	2695	CANR	45	1419.5	1422.5	7.5	11.0	2.0		
	2800	OTTA	45	1420.7	1422.5	6.3	9.4	2.4		
	2800	OTTA	45	1420.7	1422.5	3.3	9.4			
	2800	OTTA	45	1424	1425.5	3	3.2			
	2700	PENN	20	1420.9	1423	20.7	14.5	3.0		
	1420	CANR	45	1420.5	1423.5	6.5	5.0	2.0		
	2700	PENN	20	1614	1641.5	37.4	5.2	2.6		
	960	PENN	20	1619.9	1631	27.8	4.3	0.7		
	2800	OTTA	20	1625	1640	45	1.4	0.7		
	2700	PENN	24	1720.4	1913		8.2			
	2800	OTTA	20	1910	1916	23	5.4	2.7		
	8800	SGMR	20	1912	1919.8	19.4	9.2	3.1		
	4995	SGMR	20	1912.1	1916.1	20.9U	8.0	2.7		
	2695	SGMR	20	1912.3	1916.1	22.9	5.8	2.0		
	1415	SGMR	20	1912.5	1916	11.6	1.7	.6		
	245	SGMR	6	1913.3	1916.7	5.3	160.0	20.0		
	410	SGMR	6	1914.7	1915.5	2	8.1	2.7		
	2695	BOUL	21	1915	1916.5	13	5.0	2.0		
	606	SGMR	2	1915.1	1915.4	1.4	8.5	2.9		
	2695	SGMR	1	1946.9	1947	.7	2.0	1.0		
	1415	SGMR	1	1946.9	1947.1	.7	1.0	.5		
	606	SGMR	3	1946.7	1947.1	.6	20.1	4.0		
	410	SGMR	6	1946.4	1947.1	1.2	22.2	4.4		
	245	SGMR	6	1946.5	1947.1	1.2	31.3	6.2		
	606	SGMR	3	1951.6	1952.2	1	10.0	3.3		
	410	SGMR	6	1951.8	1952.3	3.3	16.0	4.0		
	245	SGMR	6	1951.5	1952.3	3.7	22.0	5.5		
	2695	SGMR	1	1952.2	1952.3	.4	.8	.3		
	1415	SGMR	1	1952.1	1952.2	.8	1.2	.4		
23	4995	CRON	8	0200	0202.5	4.5	39.0	15.0		
	2695	CRON	8	0200.5	0202.5	5.5	18.0	4.0		
	1420	CRON	45	0200.5	0203.5	8.5	13.0	4.0		
	3750	TYKW	45	0201	0203.2	9	31.0	6.0		
	8800	MANI	4	0202.1	0203.3	8.7	75.0	17.7		
	4995	MANI	4	0202.1	0203.2	8.7	54.0	10.3		
	2695	MANI	4	0202.6	0203.2	8.2	15.5	2.4		
	2000	TYKW	45	0202	0203.2	6	12 .0	3.0		
	1415	MANI	41	0202.6	0203.2	10.4	10.5	2.9		
	1000	TYKW	45	0202	0207.3	8	34.0	4.0		
	606	MANI	40	0202.5	0203.1	10.5	13.0	2.1		
	3750	TYKW	29	0210		25	2.0	1.0		
	3100	CRIM	20	0750	0820	60	10.0	3.0		
	221	ABST	41	0812.8	0830	97	12.0			
	204	KIEV	44	0815		100	26.0			
	210	IZMI	42	0817		36	45.0	6.0		
	100	GORK	44	0827		33		5.0		
	18	MCMA	42	1235	1245	20			2	
	18	MCMA	42	1340	1350	39			2	
	2800	OTTA	20	1535		125	1.2	0.8		
	2800	OTTA	20	1850	2030	170	2.6	1.3		
24	200	GORK	44	0603		357		5.0		
	29	UPIC	45	0654	0657	4				
	204	KIEV	44	0700 E		360 D	50.0			
	100	GORK	44	0815		207 D		5.0		
	210	IZMI	6	1140.2	1140.5	.4	480.0	200.0		
	410	SGMR	44	1151 E	1241.8	175.6D	21.5			
	245	SGMR	44	1151 E	1932.1	558 D	112.6			
	9400	HUAN	20	1225.1	1301	119.1	17.1	4.4		
	9500	BERL	20	1236.5	1258.2	39	13.0			
	3000	BERL	22	1243	1251.4	30	10.0	3.6		

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	4995	SGMR	20	1244.8	1252.3	31.7	10.1	5.0		
	606	SGMR	23	1244.5	1256.6	29.3	16.8	8.4		
	2695	CANR	3	1245.5	1251	13	11.0	3.0		
	1420	CANR	45	1245.5	1251	16.5	12.0	3.0		
	4995	CANR	21	1246.5	1252	25	9.0	3.0		
	1500	BERL	46	1246.5	1256.4	22	19.0	4.1		
	1415	SGMR	23	1246.8	1251.2	27.7	14.9	7.5		
	2695	SGMR	22	1249.1	1251.4	24.9	10.2	5.1		
	1415	SGMR	4	1255.1	1256.5	2.9	17.8	4.5		
	606	SGMR	46	1258.8	1300.7	9.4	60.5	15.1		
	410	SGMR	6	1258.7	1305.8	16.3	99.9	25.0		
	2800	OTTA	20	1330	1355	85	4.2			
	2800	OTTA	21	1600		110	2.0	1.7		
	29	UPIC	45	1613	1614	5				
	29	UPIC	45	1632	1632.5	6.5				
	29	UPIC	45	1650.5	1651	6				
	2800	OTTA	8	1836.4	1836.5	.5	7.6			
25	200	GORK	44	0603		216		5.0		
	204	KIEV	42	0700 E		160	17.0			
	234	POTS	45	0807	0833	137 U	850.0	50.0		
	4995	CRON	45	0816	0833.5	45.5	135.0	25.0		
	1500	BERL	46	0816.5	085n U	60	300.0			
	1420	CANR	47	0816.5	0852.5	46	1080.0	110.0		
	9285	ARCE	28	0817.4		12.1				
	3000	BERL	46	0817	0833.5	43	115.0	32.0		
	2950	GORK	46	0817	0824	71.3	90.0			
	2950	GORK		0817	0833.5		238.0			
	2950	GORK		0817	0834.7		218.0			
	2830	ARCE	28	0817.1		11.2				
	2695	CRON	40	0817.5	0842.5	42.5	126.0	31.0		
	9500	BERL	46	0818	0833.4	40	109.0	29.0		
	9100	GORK	23	0818.8	0836.3	40.2	90.0	36.0		
	8800	MANI	4	0819.2	0833.5	46.8D	194.0	61.0D		SUNSET
	4995	MANI	4	0819.2	0833.4	46.8D	191.0	78.0D		SUNSET
	2695	MANI	4	0819.2	0846.6	46.8D	110.0	38.4D		SUNSET
	1420	CRON	47	0819	0852	59	1286.0	151.0		
	1415	MANI	47	0819.2	0831	46.8D	1250.0	405.0D		SUNSET
	950	GORK	46	0819	0829.2	35	230.0			
	950	GORK		0819	0831		1000.0			
	950	GORK		0819	0844.8		830.0			
	650	GORK	46	0819. U	0833.5U	37.5	550.0			
	650	GORK		0819.5U	0844.8		84.0			
	650	GORK		0819.5U	0851 U		1024.0			
	606	MANI	47	0819.2	085n.8	46.8D	1890.0	570.0D		SUNSET
	237	TRST	27	0820	0832.2	120	1700.0U			
	204	KIEV	49	0820	0834.5	80	106.0D			
	210	IZMI	49	0822	0836	53	1150.0	450.0		
	200	GORK	48	0822.4	0834.4	13.6	300.0D			
	113	POTS	45	0822	0842	170 U	200.0	40.0		
	100	GORK	48	0823.6	0826.5	3.8	100.0			
	2695	CANR	45	0827	0842.5	33	152.0	41.0		
	100	GORK	49	0827.4	0840	8.6	1000.0			
	2830	ARCE	46	0828.3	0833.7	28.9				
	2830	ARCE		0828.3	0833.7	11.6				
	9285	ARCE	46	0829.5	0833.6	26.3				
	9285	ARCE		0829.5	0831.4	3.7				
	4995	CANR	45	0829.5	0834	46.5	71.0	17.0		
	9285	ARCE		0833.2	0833.6	6.8				
	9100	GORK	45	0833.1	0833.5	2.9	93.0	35.0		
	9100	GORK		0833.1	0834.5		81.0			
	200	GORK	49	0836	084n.8	30	200.0	70.0		
	2830	ARCE		0839.9	0842.2	4.6				
	9285	ARCE		0840	0842.7	15.8				
	9100	GORK	3	0841.4	0842.2	2.1	36.0	15.0		
	2830	ARCE		0844.5	0851.3	12.7				
	950	GORK	29	0854	0854	45	20.0			
	9285	ARCE	29	0855.8		120 D				
	2830	ARCE	30	0857.2		142				
	650	GORK	29	0857	0857	18	9.0	5.0		
	2950	GORK	29	0901	0901	28.7	22.0			
	2695	CRON	45	0909.5	0911	4.5	9.0	3.0		
	3000	BERL	4	0910.5	0911.6	5.8	9.6	2.7		
	2695	CANR	45	0910	0911.5	4.5	10.0	3.0		
	1500	BERL	4	0910.5	0911.5	4	15.0			
	1420	CANR	45	0910.5	0911.5	5.5	10.0	3.0		
	950	GORK	45	0910.8	0911.7	3.4	19.0			
	950	GORK		0910.8	0912.6		13.0			
	2950	GORK	3	0911.3	0911.6	1.9	13.2			
	2830	ARCE	4	0911.3	0911.7	3				
	650	GORK	45	0911.1	0911.5	3.5	26.0			
	650	GORK		0911.1	0913		25.0			
	29	UPIC	45	0911	0934	58				
	1500	BERL	4	0921	0926.5	14	24.0	4.9		
	3000	BERL	4	0923.7	0926.9	7.3	21.0	7.5		
	2695	CANR	3	0923	0926.5	6	21.0	7.0		
	2695	CRON	8	0923.5	0926.5	5.5	18.0	7.0		
	1420	CANR	45	0923	0924	11.5	15.0	4.0		
	650	GORK		0923.8	0926.5U	5.2	100.0D			
	2830	ARCE	3	0924.3	0926.8	5.5				

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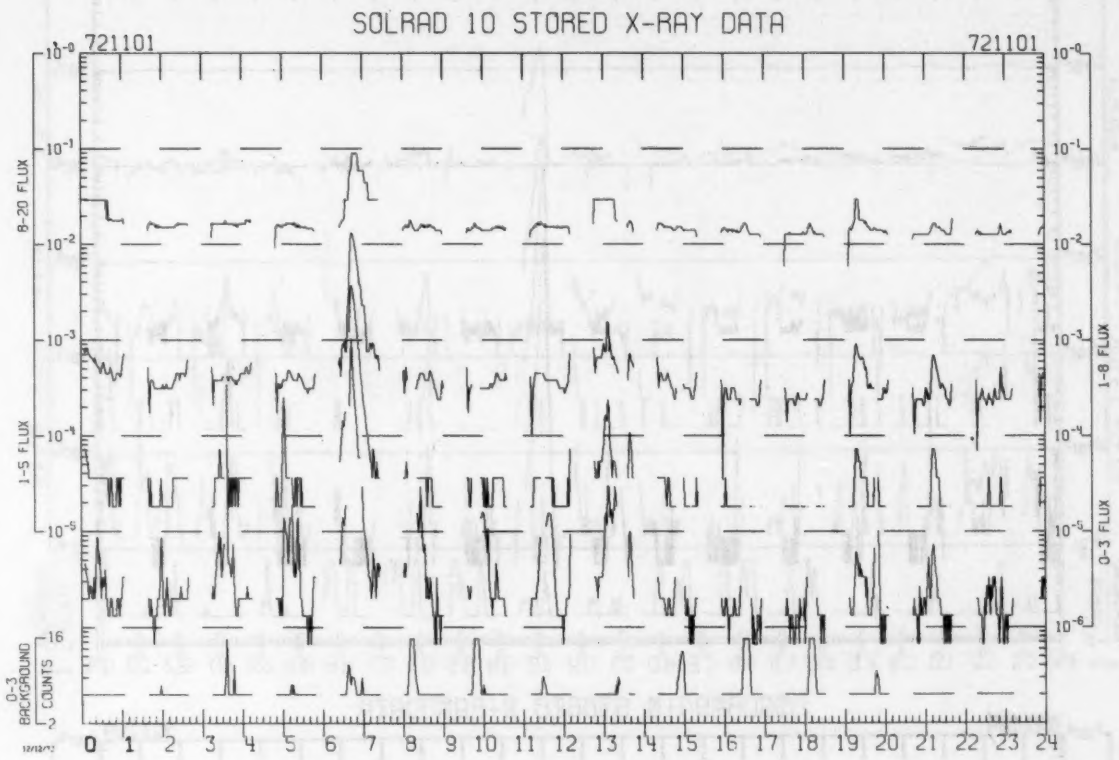
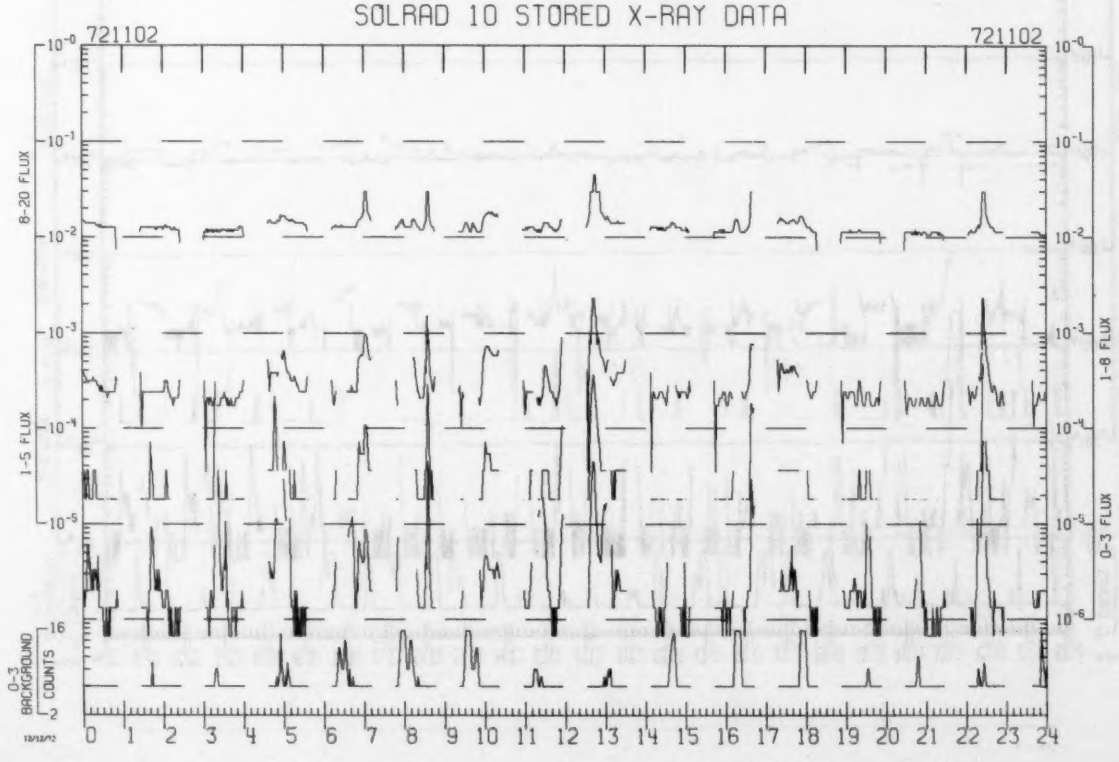
	2950	GORK	3	0925.2	0926.8	2.7	25.0			
	210	IZMI	6	0925.1	0926.8	2.4	40.0	20.0		
	650	GORK	4	0931	0933	3.9	48.0	18.0		
	650	GORK	29	0934.8	0938.1	9.8	4.0			
	100	GORK	44	0948		126 D		5.0		
	1420	CRON	8	1022	1026.5	7.5	20.0	4.0		
	245	SGMR	44	1152 E	1718.6	557 D	64.3			
	2800	OTTA	20	1425	1530	160	1.8	0.9		
	9400	HUAN	20	1855	1914.7	34.5	11.5	3.4		
	245	BOUL	42	1945	2003	71			1	
26	8800	MANI	22	0510.5	0513	17.3	18.6	4.6		
	4995	MANI	22	0510.5	0513.5	22.7	15.1	4.1		
	2695	MANI	22	0510.5	0513.2	16.8	15.0	2.3		
	2695	CRON	21	0510	0512.5	15	12.0	3.0		
	4995	CRON	21	0511	0513	17.5	15.0	3.0		
	3750	TYKW	3	0511	0513.2	9	14 .0	4.0		
	9400	TYKW	3	0512	0513.2	2	12 .0	4.0		
	2000	TYKW	45	0512	0516.3	5	8.0	4.0		
	9400	TYKW	29	0514		60	7.0	4.0		
	1420	CRON	8	0514	0516	4	12.0	5.0		
	1415	MANI	2	0514.4	0516.2	3.4	8.9	2.0		
	1000	TYKW	45	0514	0516	4	3.0	1.0		
	2000	TYKW	29	0517		40	3.0	2.0		
	3750	TYKW	29	0520		55	3.0	2.0		
	200	GORK	44	0616 E		164		5.0		
	204	KIEV	44	0700 E		360	27.0			
	245	SGMR	44	1154 E	1409.5	553 D	24.0			
	4995	CRON	3	2151.5	2152	1	9.0	3.0		
	2695	CRON	3	2151.5	2152	1.5	5.0	2.0		
	1420	CRON	3	2151.5	2152.5	1.5	4.0	1.0		
27	3100	CRIM	1	0747	0748	2	5.0	2.0		
28	1000	TYKW	20	0359	0410	30	3.0	1.0		
	606	MANI	20	0359.3	0406.6	19.9	6.1	1.2		
	9400	TYKW	20	0400	0410	140	9.0	4.0		
	3750	TYKW	45	0400	0410	25	25.0	9.0		
	2000	TYKW	45	0400	0410	30	13.0	4.0		
	1420	CRON	45	0400	0411	28	8.0	2.0		
	1415	MANI	20	0400.9	0409.4	12.7	5.8	1.0		
	4995	MANI	22	0401.3	0410.2	12.3	25.4	5.6		
	2695	MANI	22	0401.2	0409.9	13.1	18.7	4.7		
	4995	CRON	45	0403.5	0410	25	15.0	3.0		
	2695	CRON	45	0403	0409.5	23	14.0	5.0		
	3750	TYKW	29	0425		110	9.0	4.0		
	2695	CANR	3	0818.5	0819.5	1.5	6.0	2.0		
	1420	CANR	3	0818	0819	1.5	3.0	1.0		
	4995	CANR	3	0819	0820.5	1.5	8.0	3.0		
	210	IZMI	6	0852.7	0852.9	.3	56.0	25.0		
	18	MCMA	6	1354	1403	11			1	
	9400	HUAN	22	1617.6	1644.5	87	30.9	8.9		
30	221	ABST	41	0700	0734.5	120	11.0			
	3100	CRIM	3	0945	0951	20	18.0	6.0		
	2695	CANR	45	0947.5	0951.5	7.5	12.0	3.0		
	3000	BERL	3	0950.8	0951.4	1.7	9.4	3.3		
	2695	CRON	21	0950	0950.5	6	10.0	3.0		
	1420	CANR	45	0950	0950.5	4.5	7.0	2.0		
	1420	CRON	45	0950	0951	6	10.0	2.0		
	1500	BERL	4	0951	0951.4	2	7.2	2.8		
	4995	CRON	8	0954.5	0955.5	1.5	9.0	2.0		
	2695	CANR	3	1006	1007	2	3.0	1.0		
	3000	BERL	20	1010	1013.8	30	2.8			
	1500	BERL	46	1012	1014.5	18	4.8	2.0		
	1420	CANR	4	1013.5	1015	3	4.0	1.0		
	408	TRST	42	1013.4	1018.7	6.8	83.0			
	245	SGMR	44	1158 E	1439.7	548 D	12.6			
	245	BOUL	42	1417	1440	98			1	
	2695	CANR	45	1325	1327	11	3.0	1.0		
	1420	CANR	3	1334	1335	3	4.0	1.0		
	4995	SGMR	1	1335.3	1336.6	5.8	2.2	1.1		
	2695	SGMR	1	1335.8	1336	5.6	2.4	1.2		
	1415	SGMR	1	1335.3	1335.8	2.9	3.4	1.7		
	2695	CANR	3	1519.5	1522	3.5	5.0	2.0		
	8800	SGMR	1	1520.2	1523.5	7.5	1.7	.8		
	4995	SGMR	1	1520.1	1523.5	6.2	2.2	1.1		
	2800	OTTA	2	1520	1522.5	5	3.2	1.1		
	1415	SGMR	46	1521.3	1522.6	4.8	36.5	14.2		
	2695	SGMR	2	1522.1	1522.5	1.5	3.4	1.7		
	606	SGMR	4	1522	1522.5	2.2	20.5	8.2		
	1420	BOUL	8	1915.5	1916.5	1.5	31.0	13.0		
	2800	OTTA	1	1916	1916.8	2	5.2	2.4		
	2695	SGMR	1	1916.3	1916.8	2	5.1	2.5		
	2695	BOUL	3	1916	1917	1.5	7.0	3.0		
	1415	SGMR	3	1916.5	1916.8	2.3	34.7	13.1		
	606	SGMR	4	1916.6	1917	2.1	32.4	12.1		

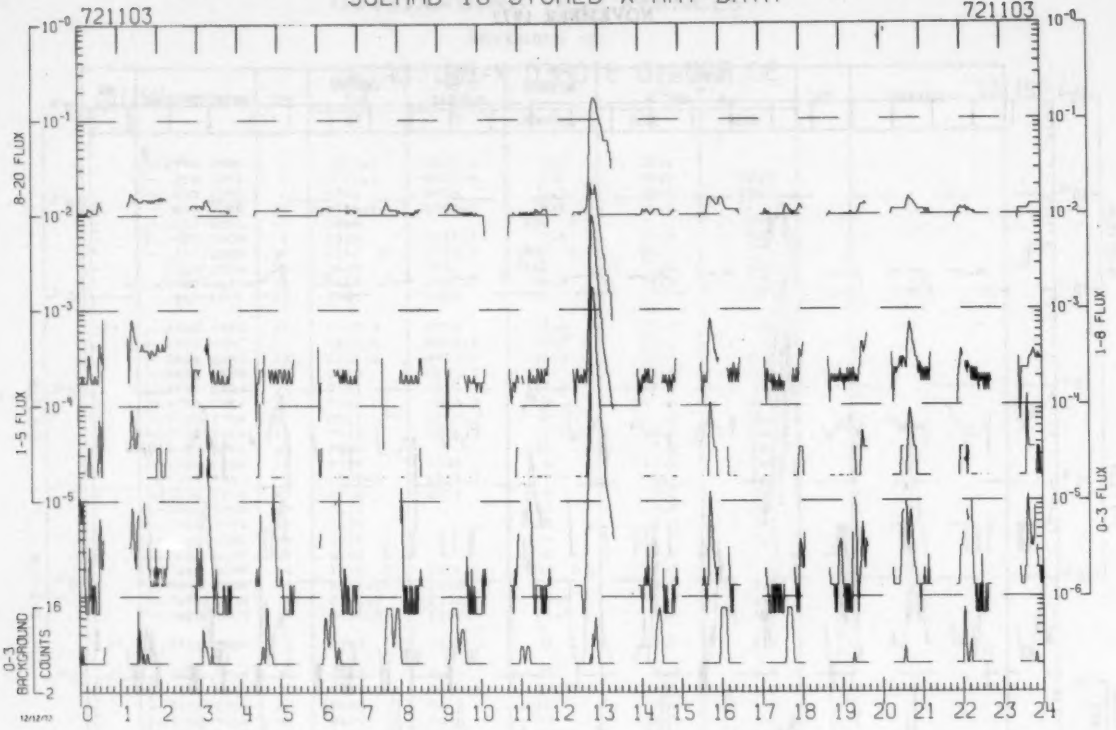
SOLAR X-RAYS MEASURED BY SATELLITE SOLRAD 10 - EXPLORER 44

NOVEMBER 1972





SOLRAD 10 STORED X-RAY DATA



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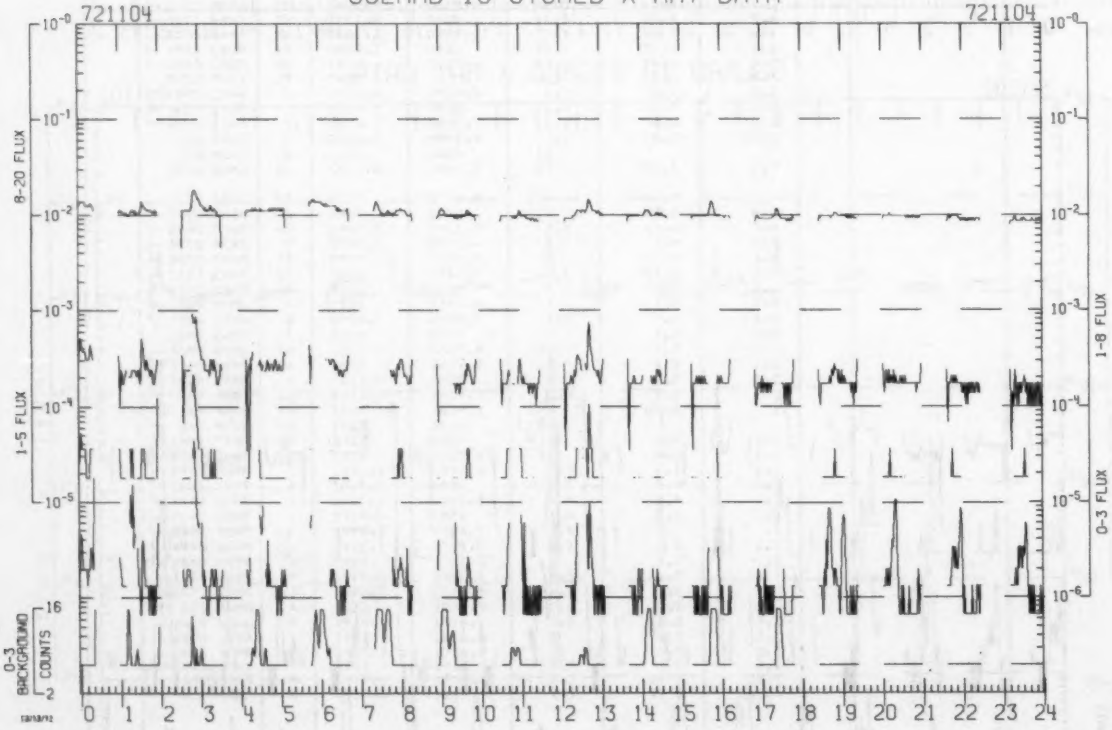

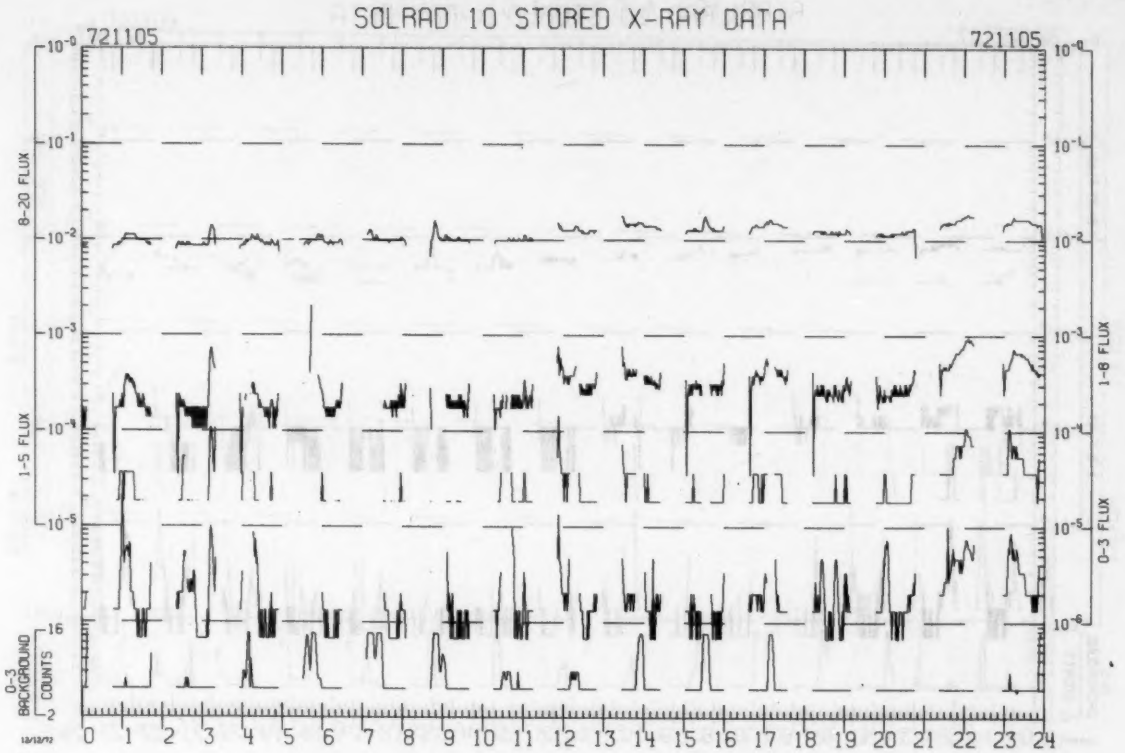
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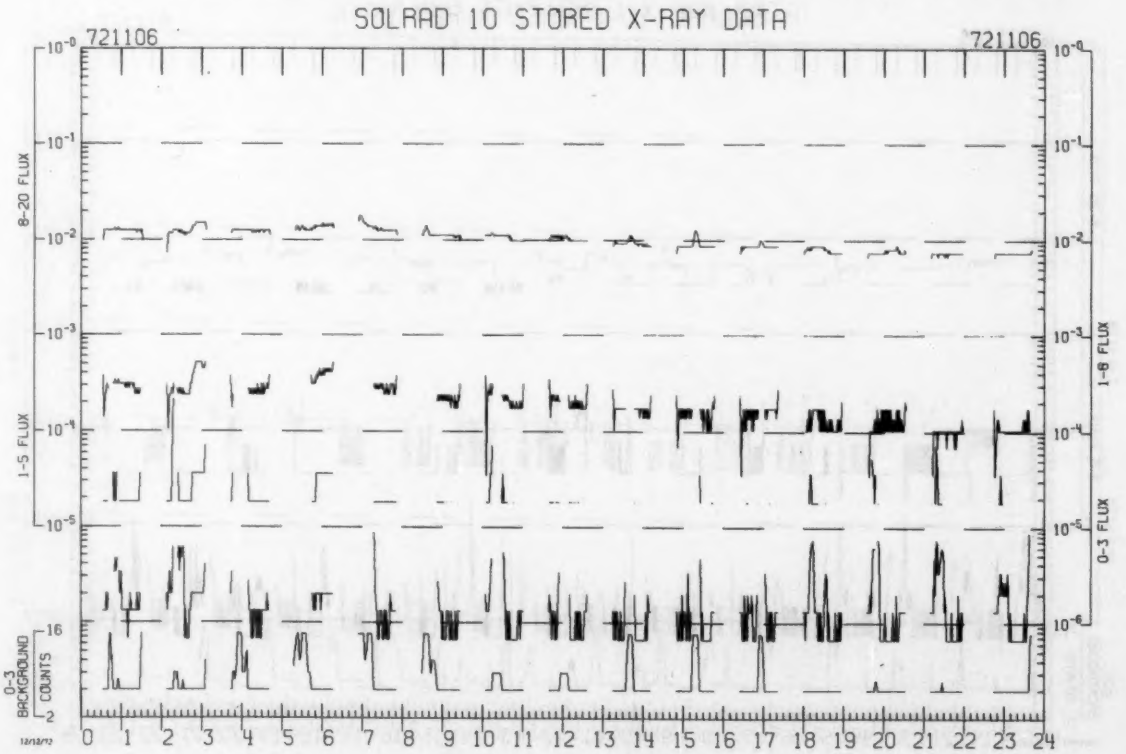
721105
721105
8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
12/13/72
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24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721106
8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
12/13/72
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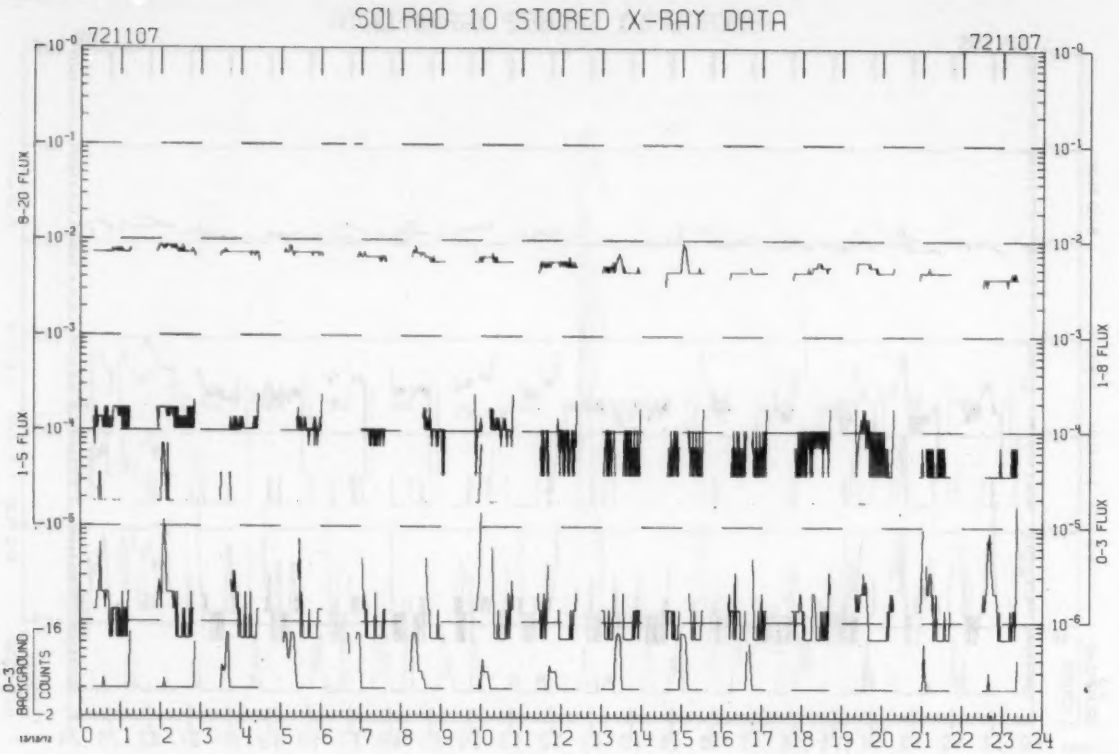
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1-5 FLUX
0-3 BACKGROUND COUNTS
1-8 FLUX
0-3 FLUX
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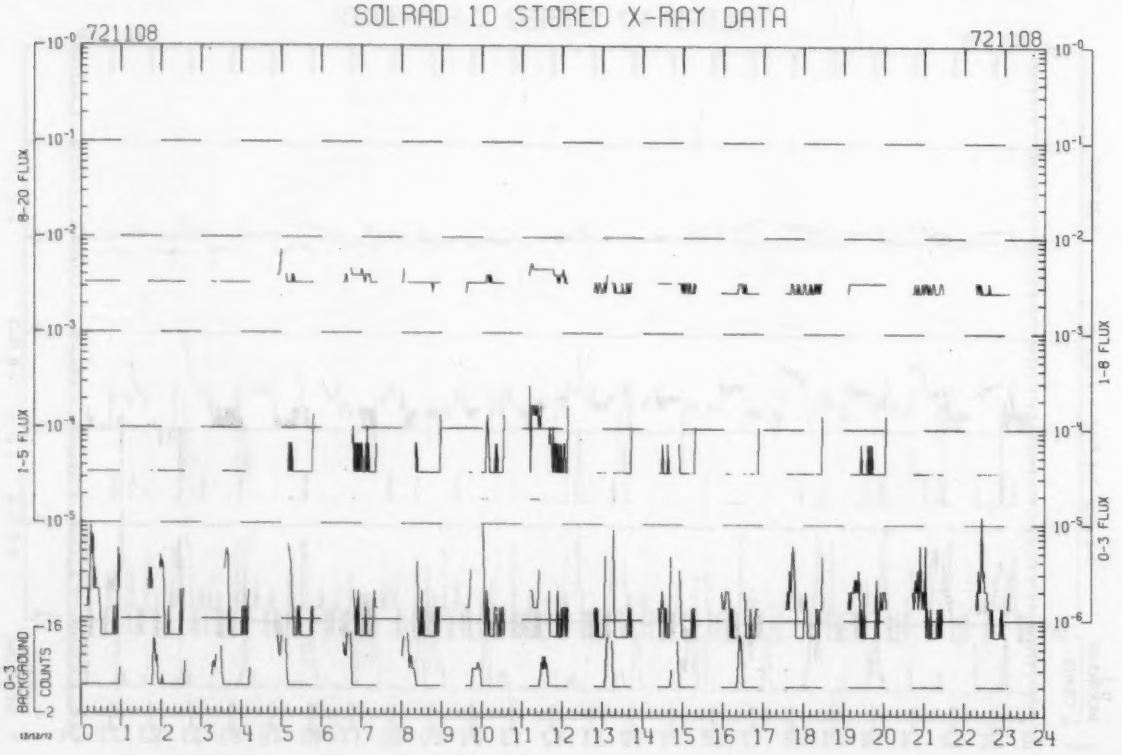
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8-20 FLUX
1-5 FLUX
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1-8 FLUX
0-3 FLUX
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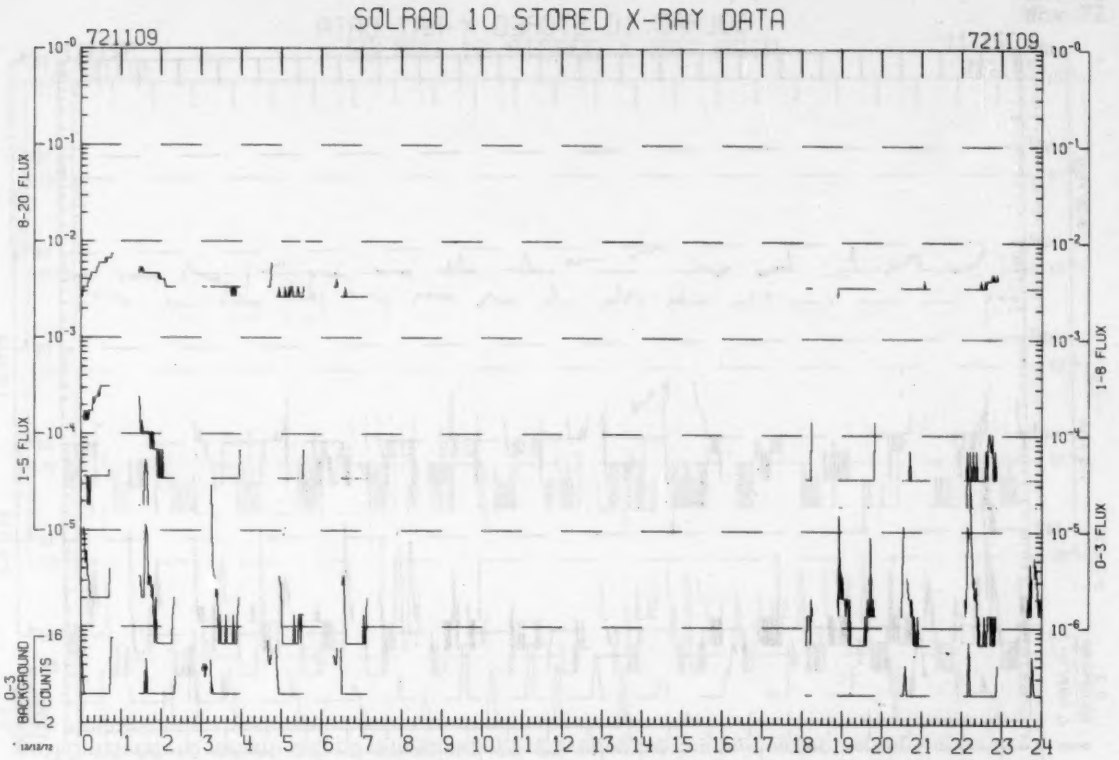
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1-8 FLUX
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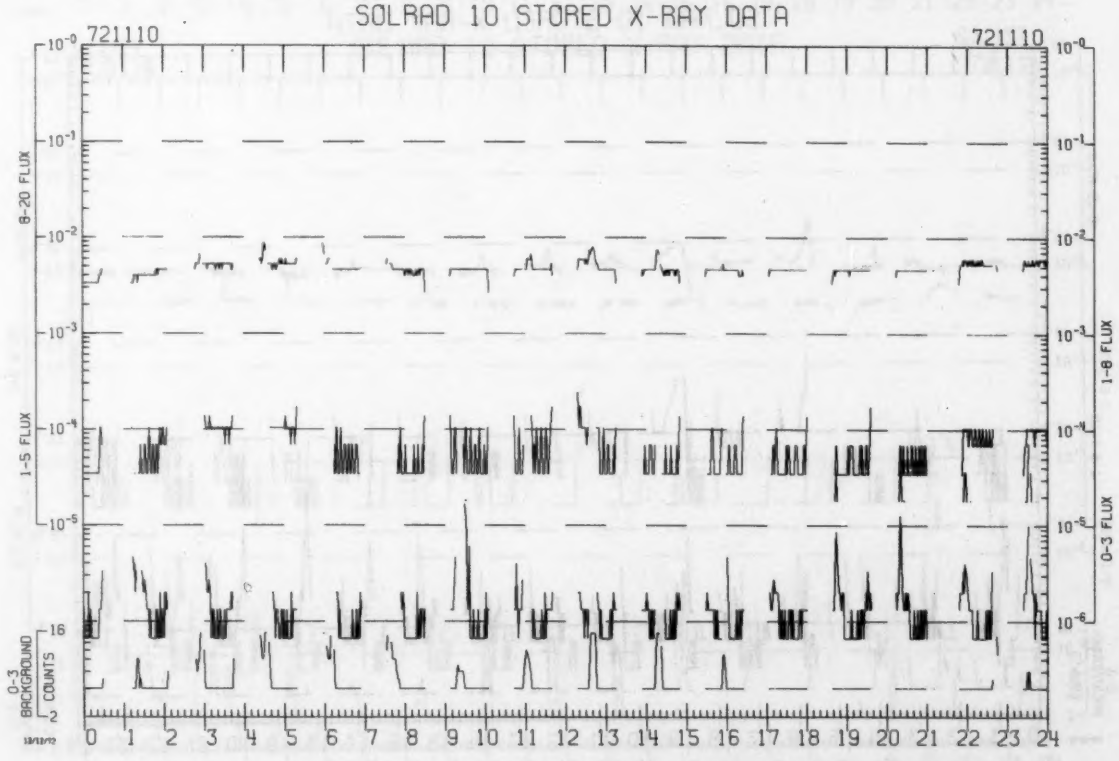
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721110
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8-20 FLUX
1-5 FLUX
0-3 BACKGROUND COUNTS
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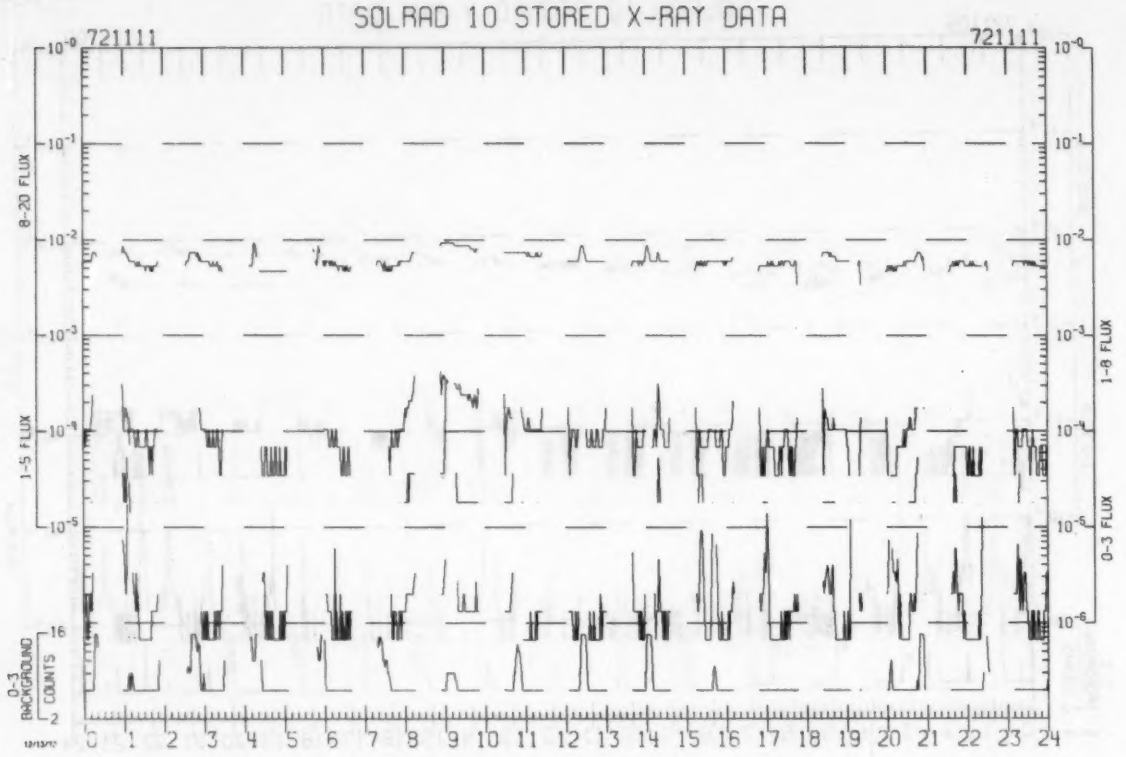
28
Nov 72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721111
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8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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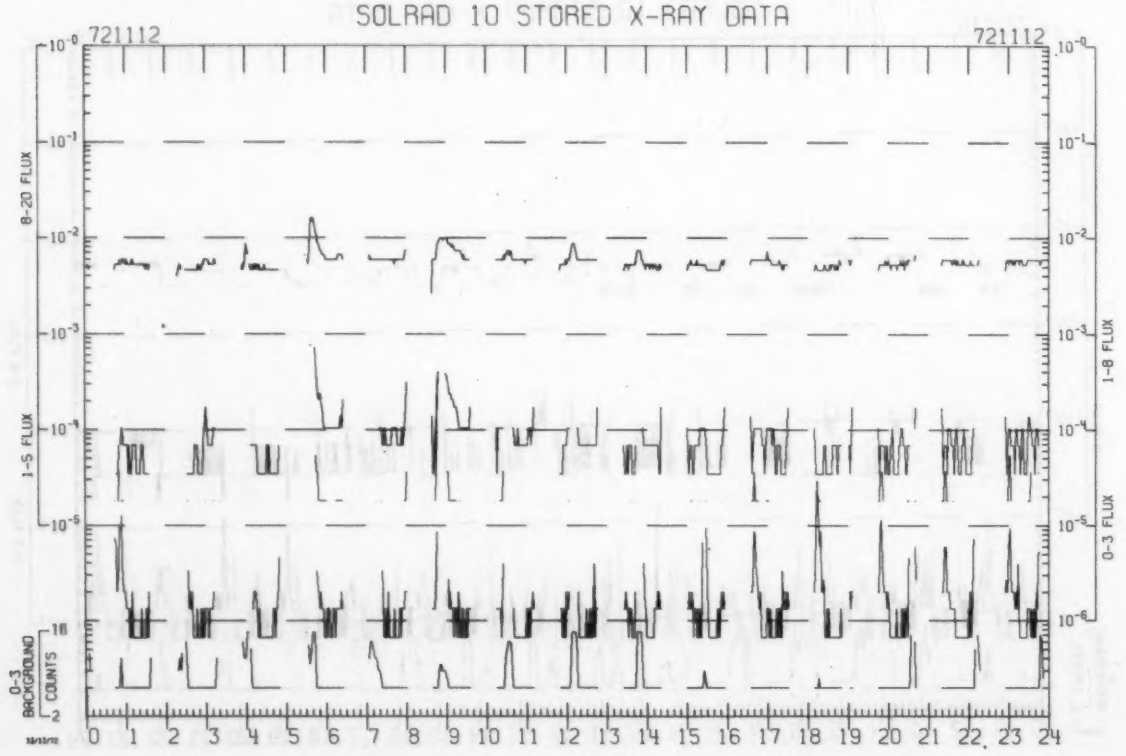
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721112
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8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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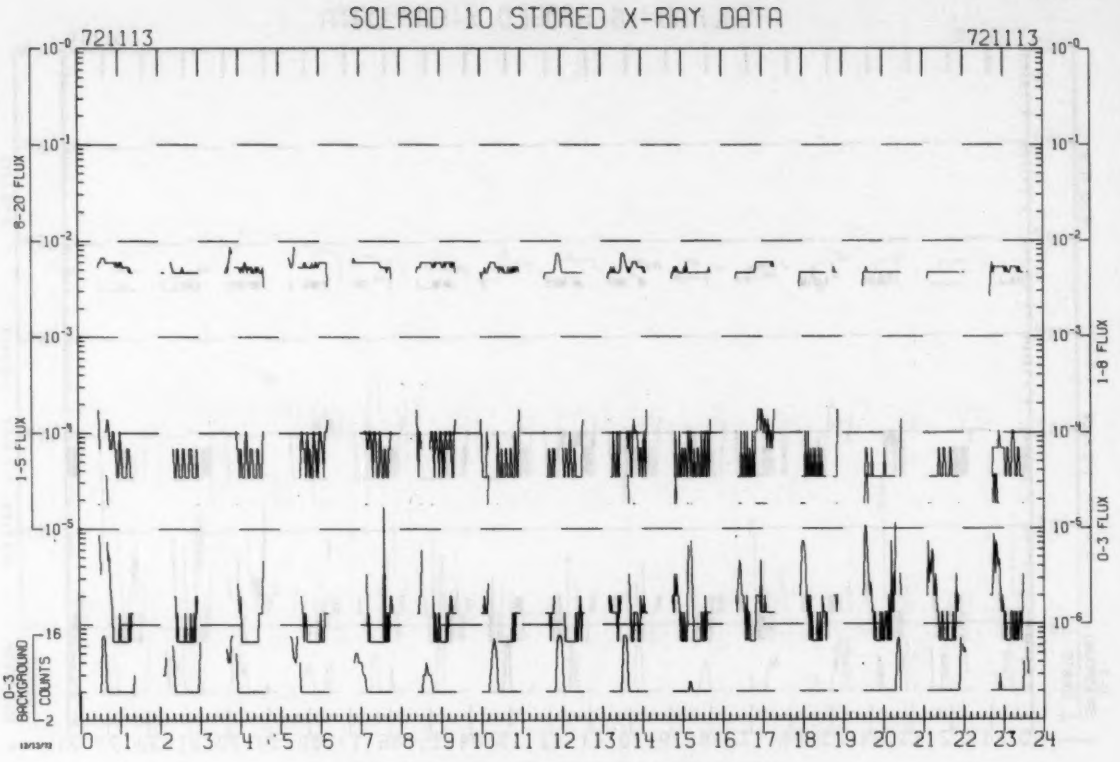
SOLRAD 10 STORED X-RAY DATA
721113
721113
8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
12/13/72
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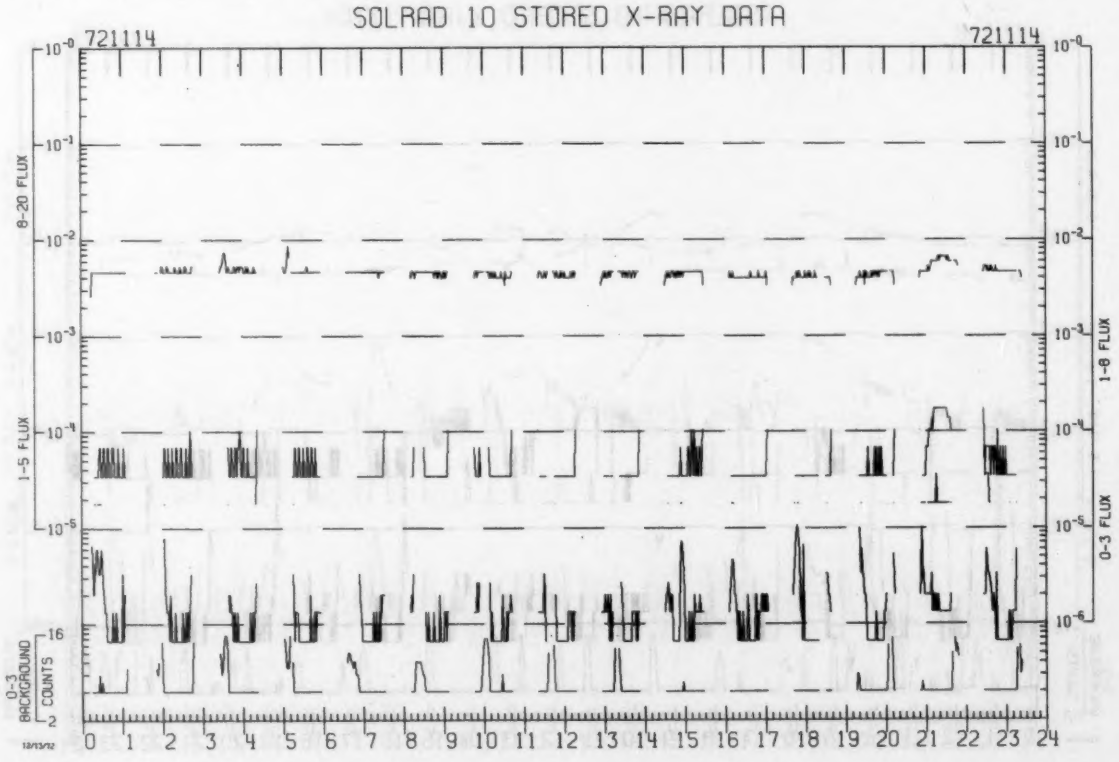
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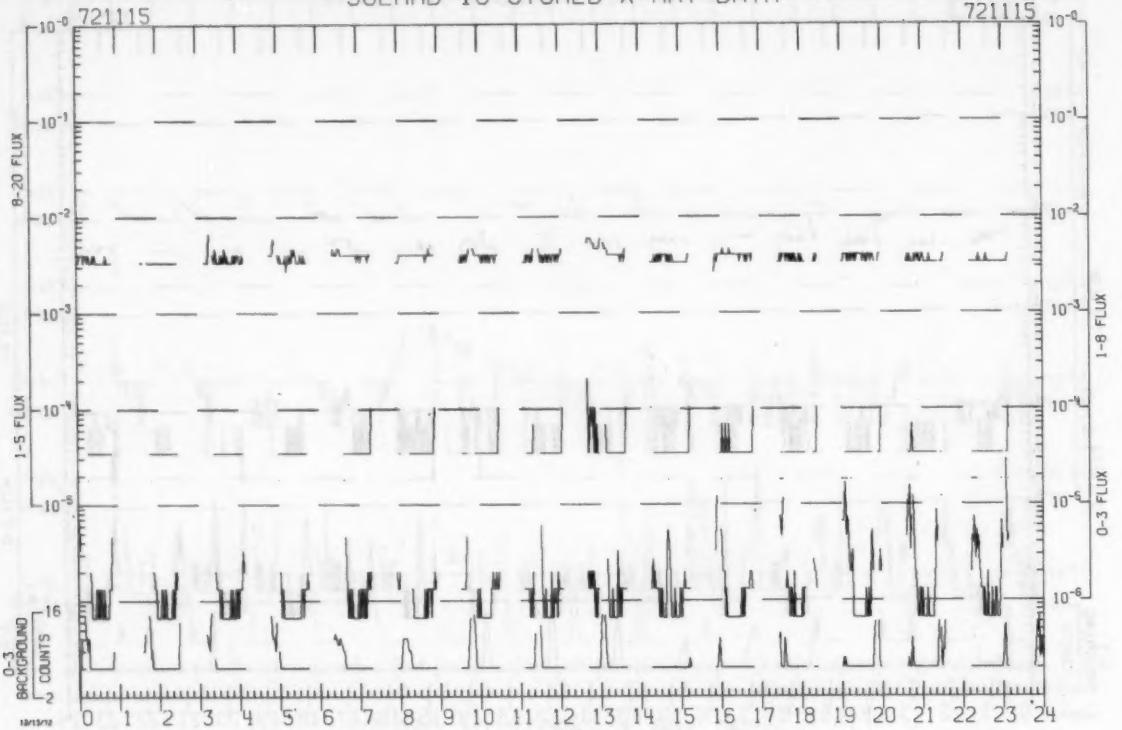
8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
12/13/72
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

SOLRAD 10 STORED X-RAY DATA



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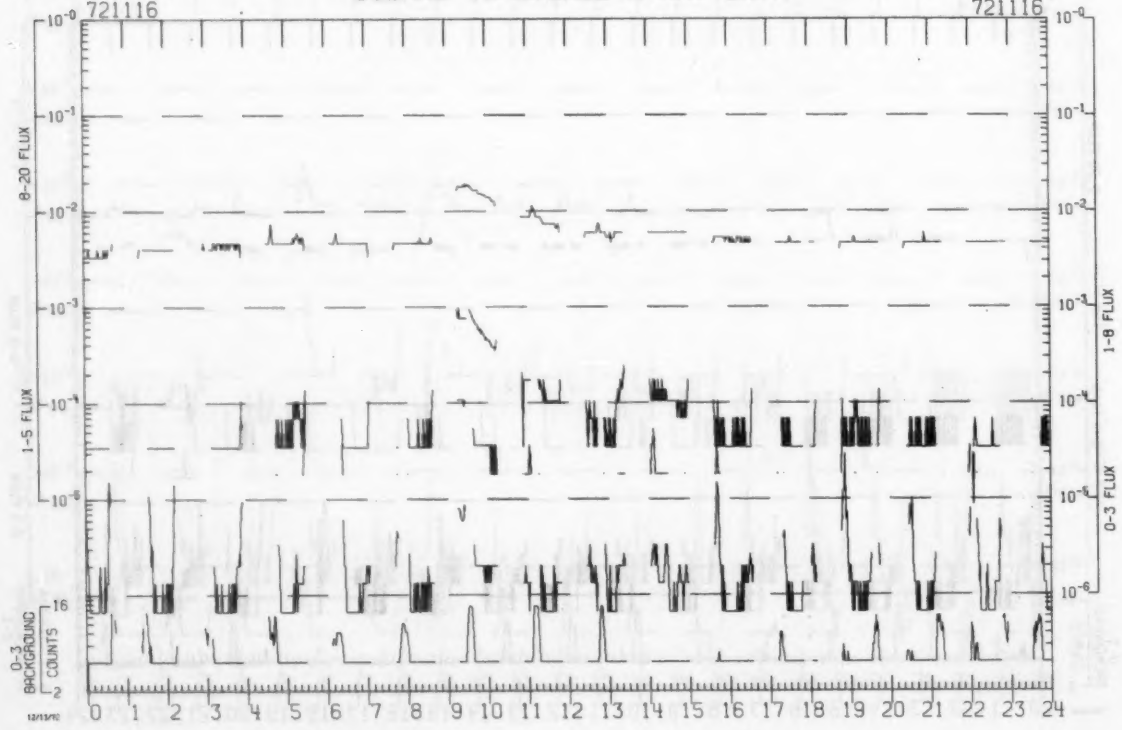

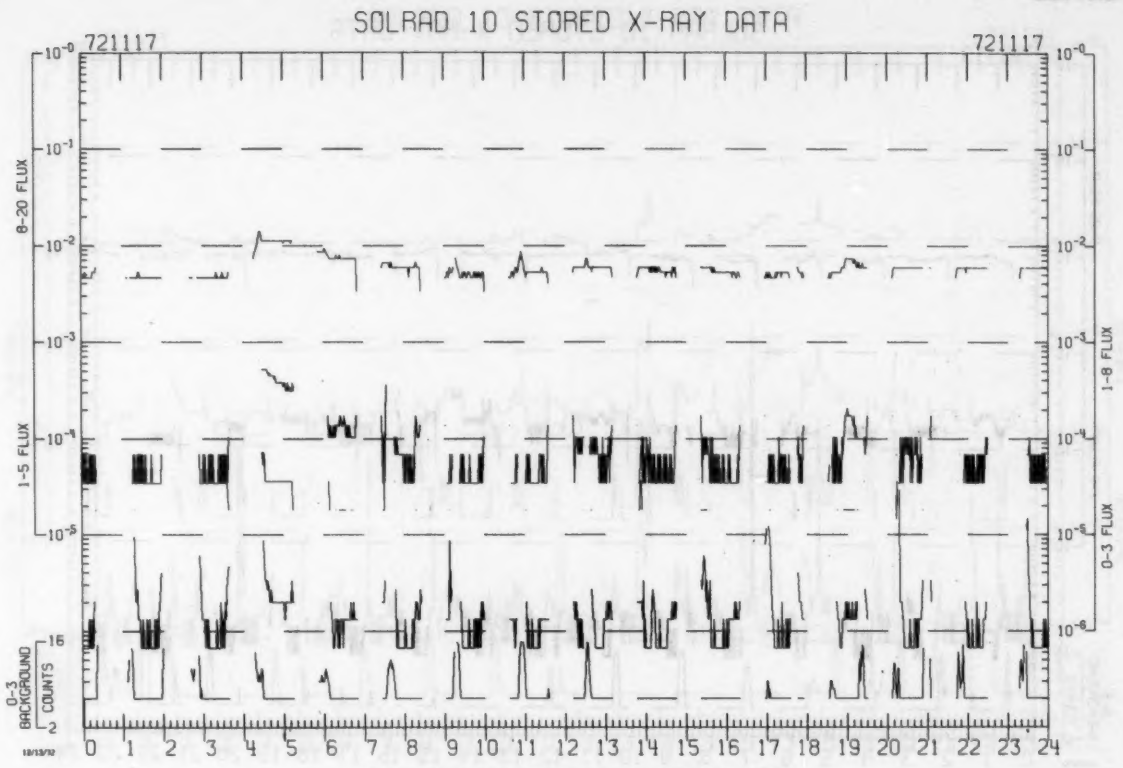
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721117
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1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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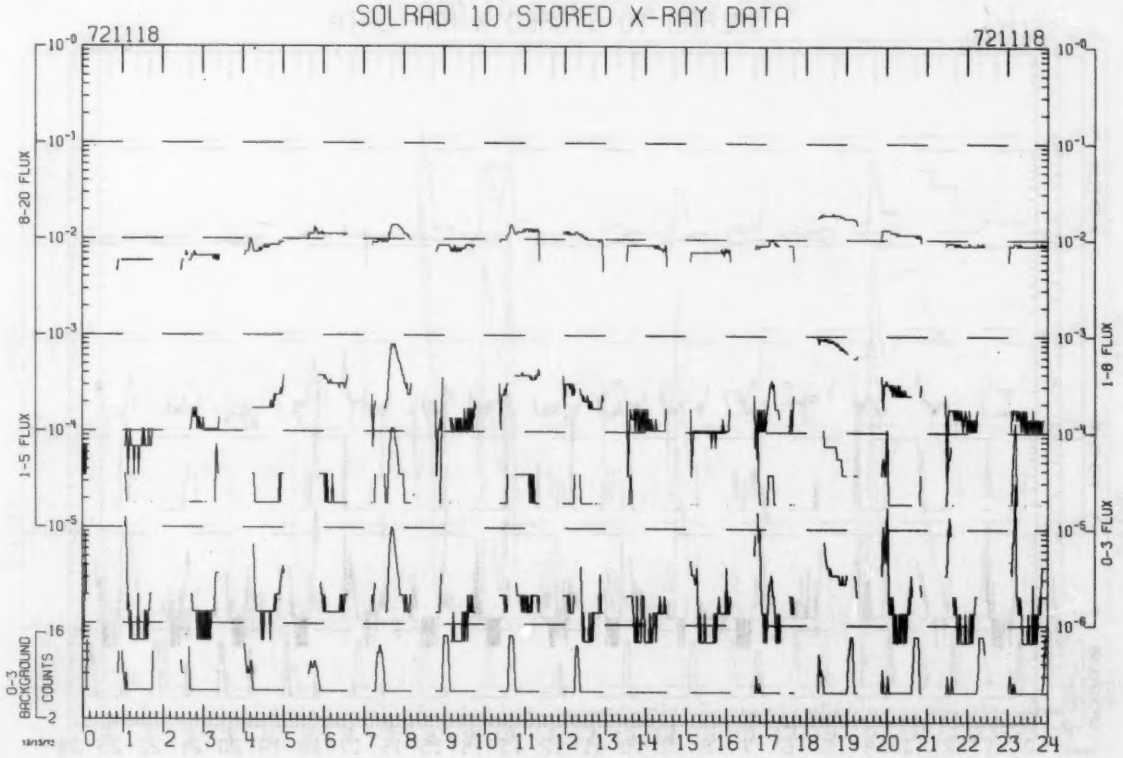
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721118
8-20 FLUX
1-5 FLUX
1-8 FLUX
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0-3 BACKGROUND COUNTS
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

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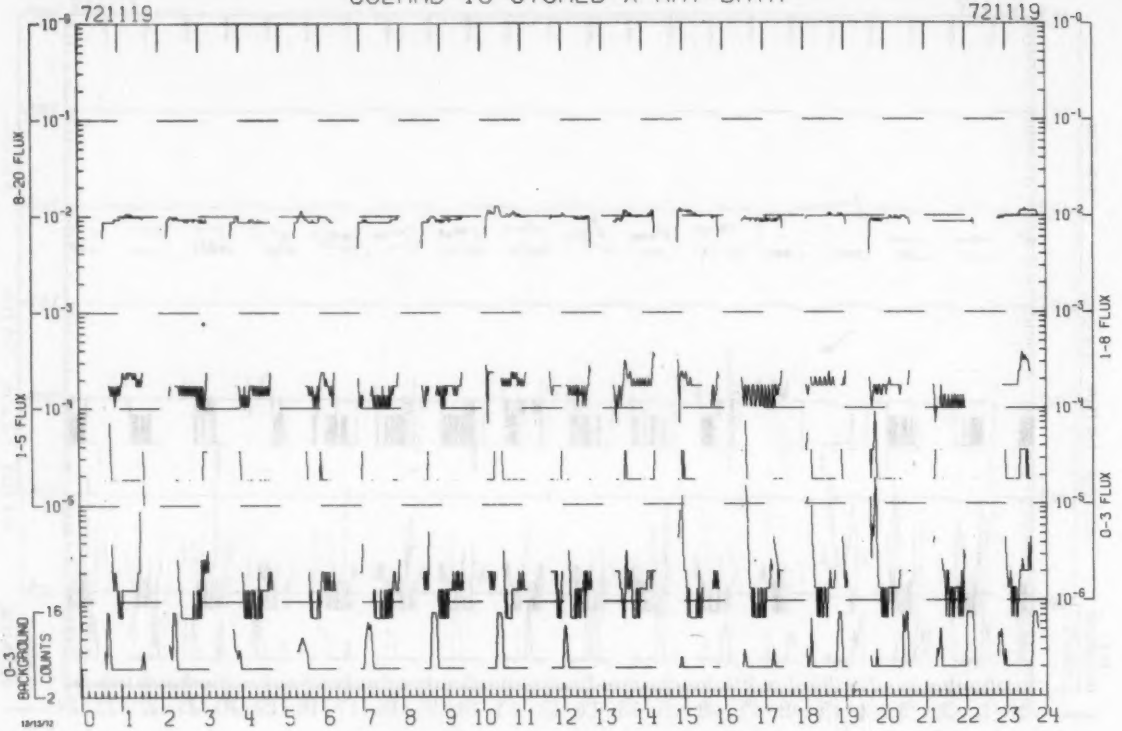

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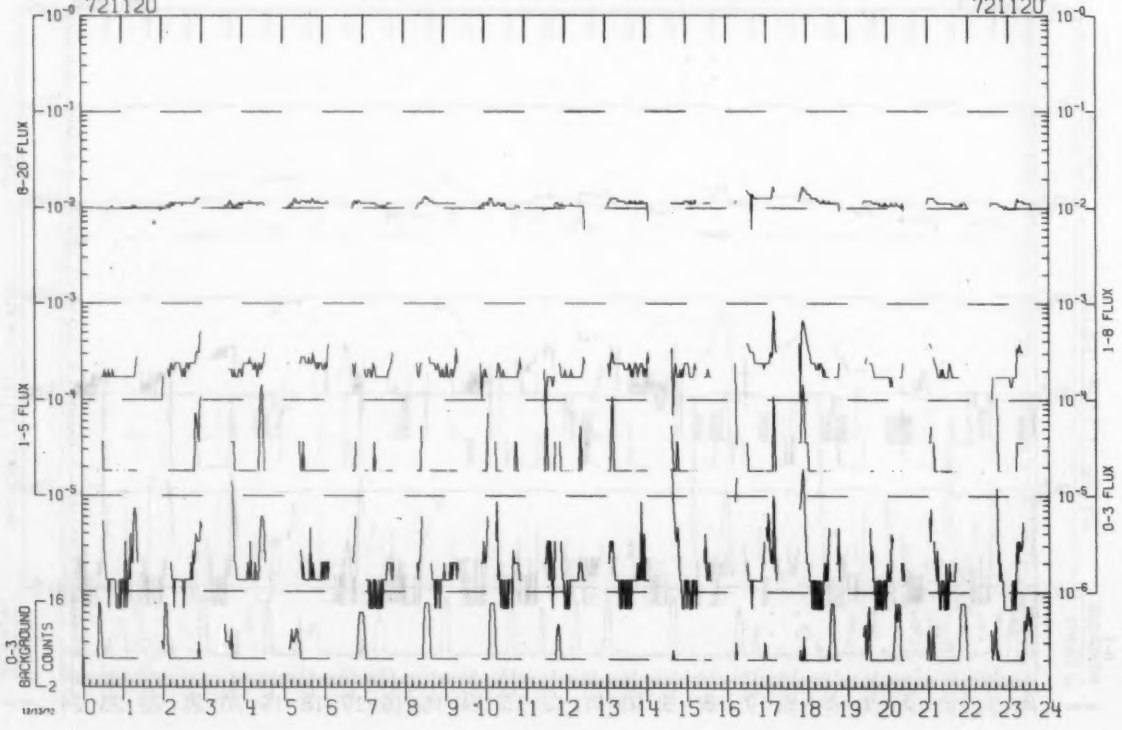

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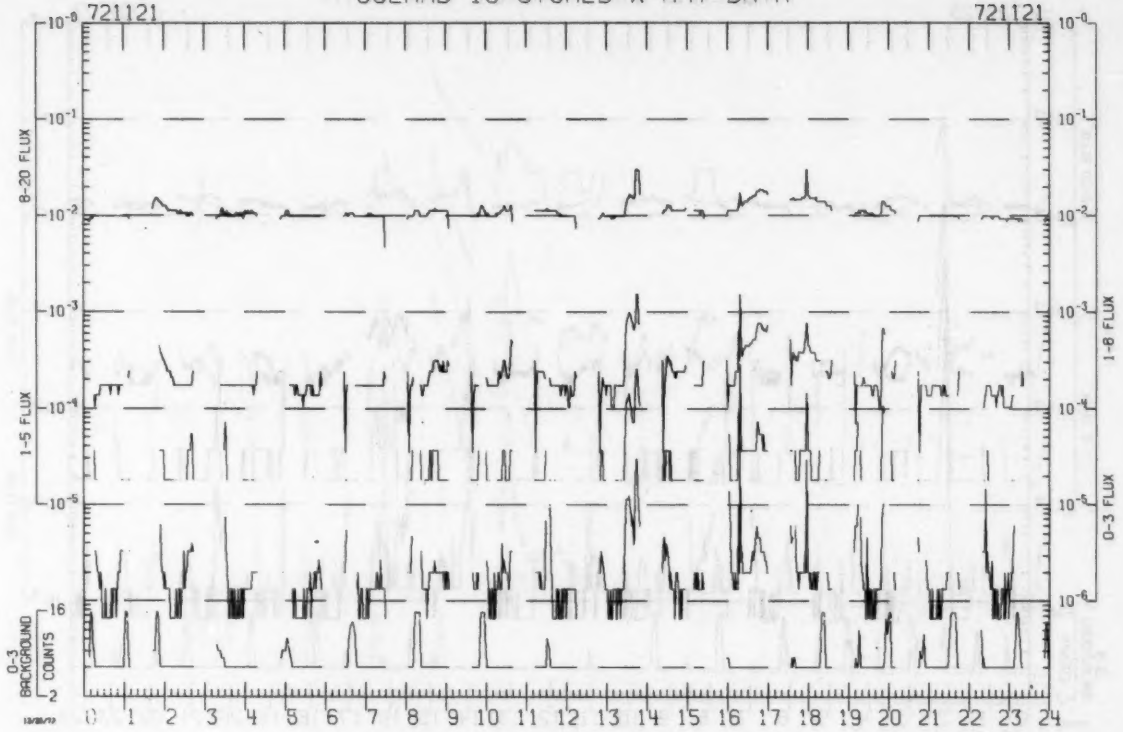

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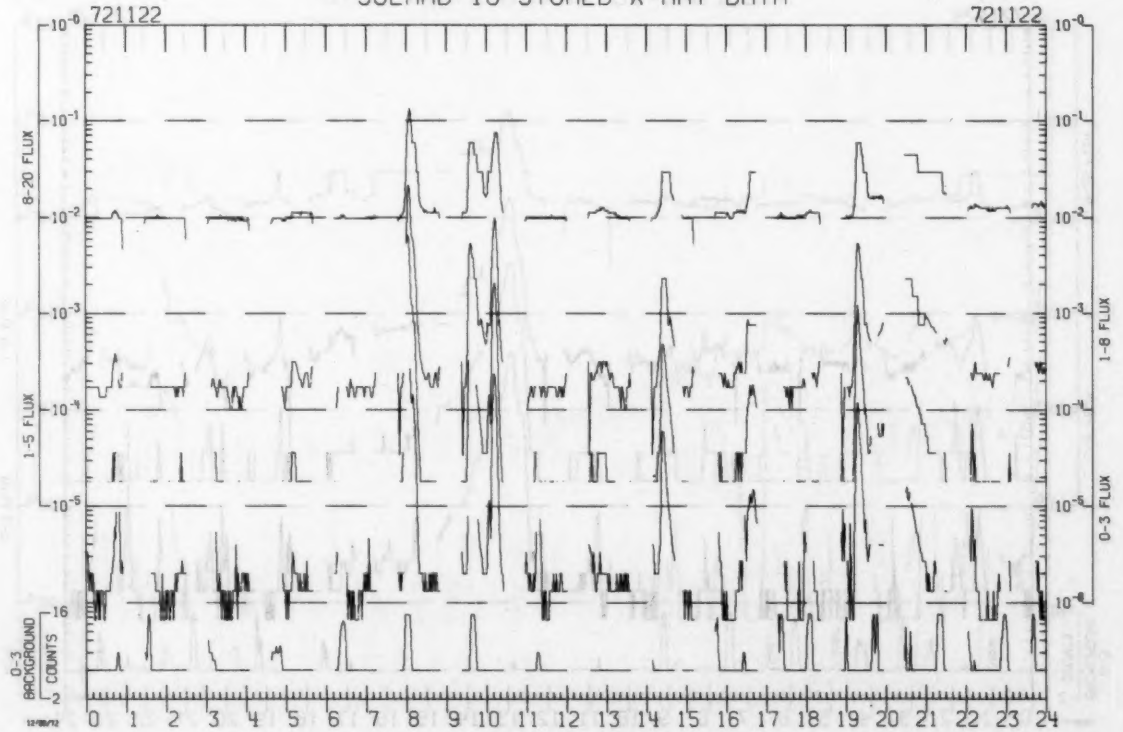

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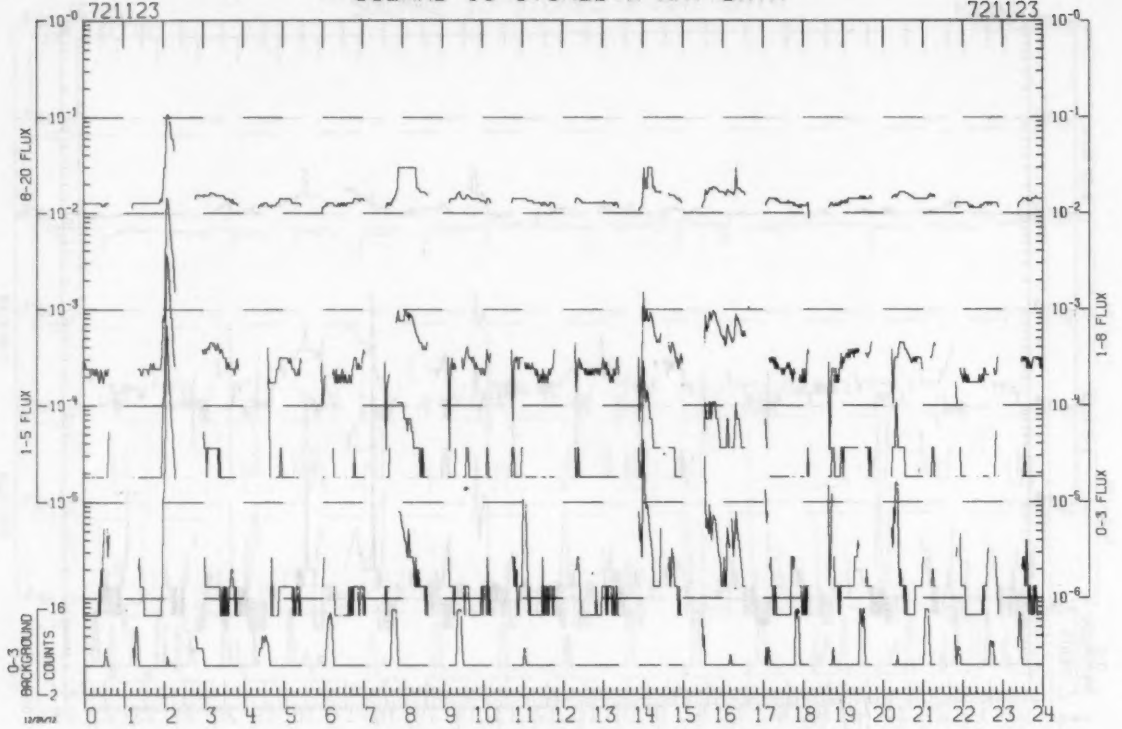

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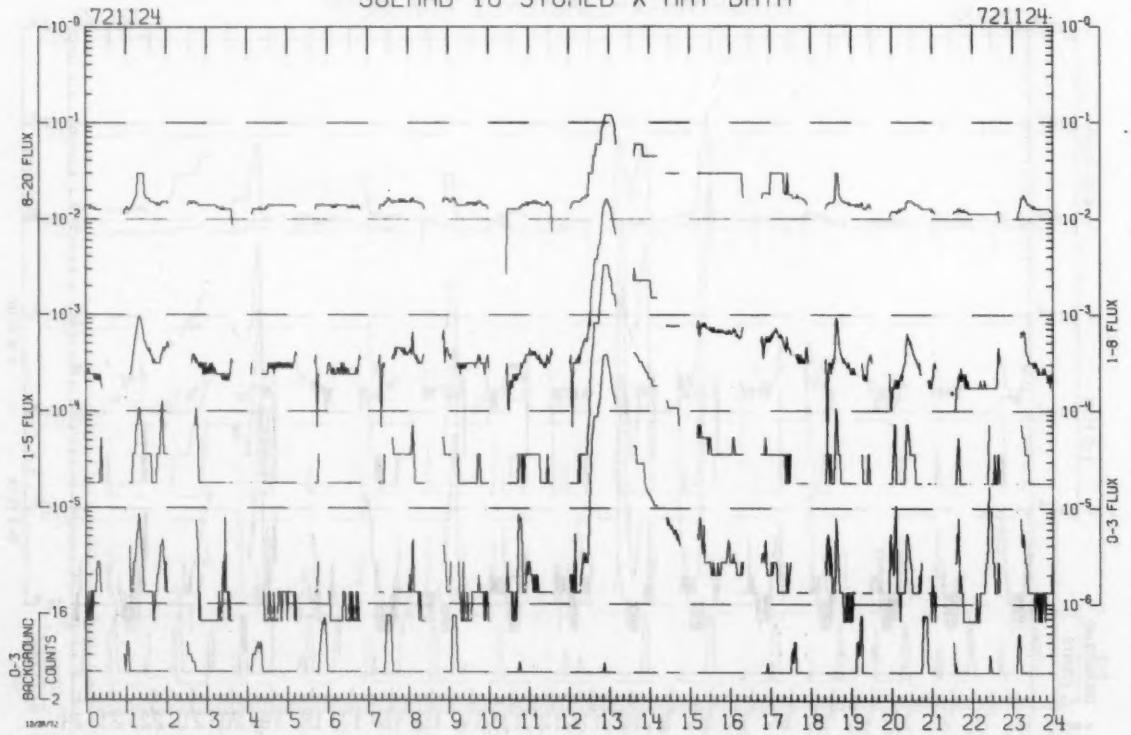

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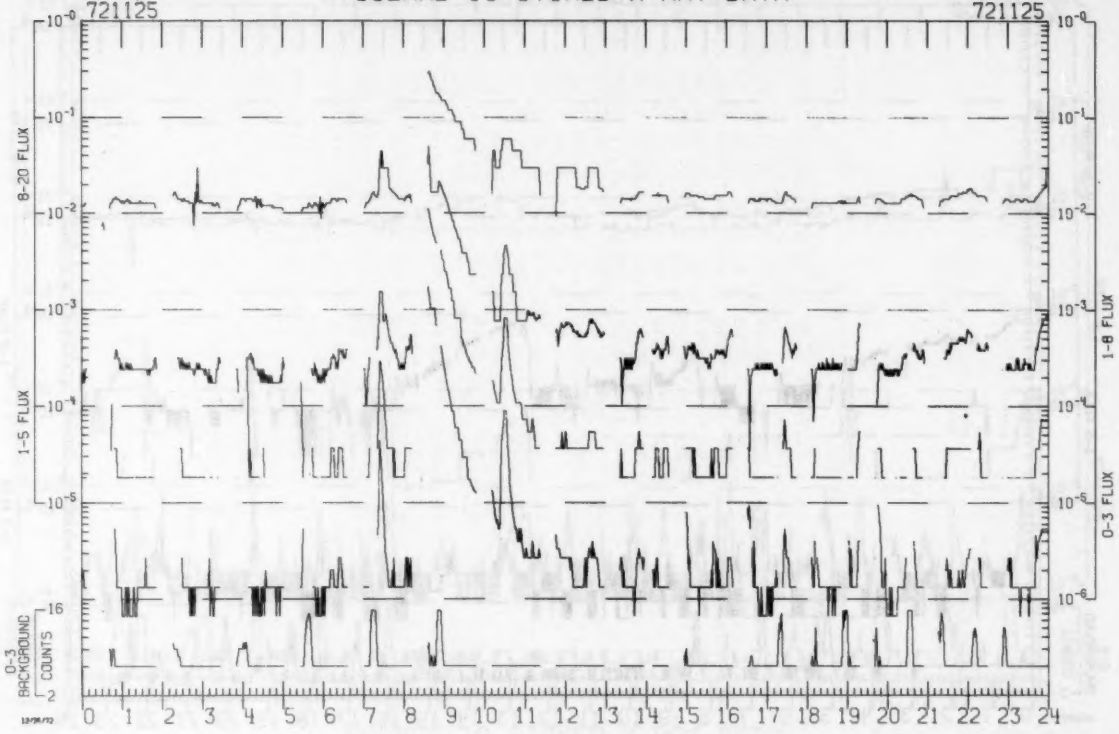

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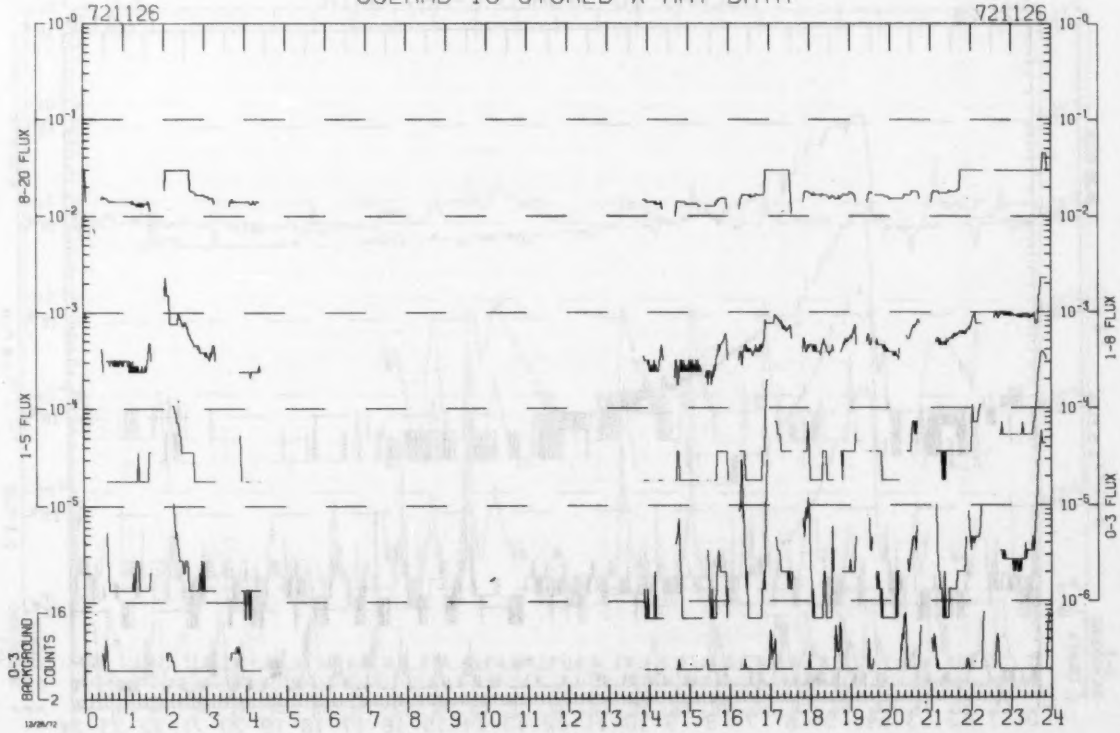

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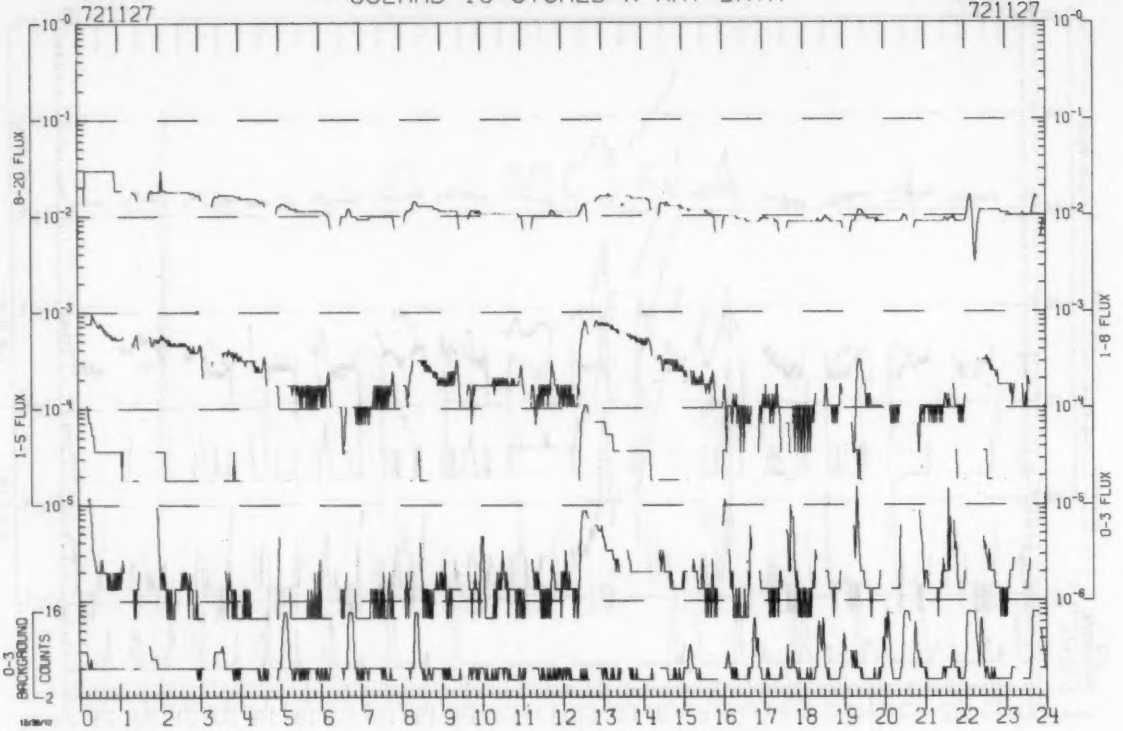

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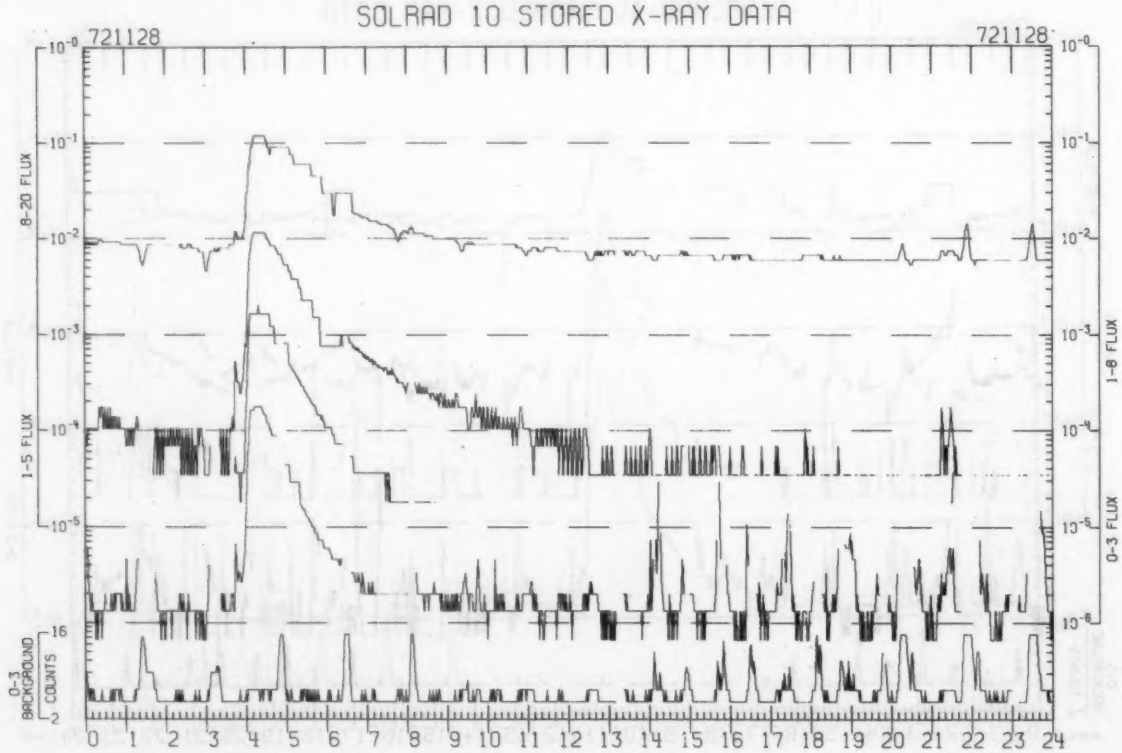

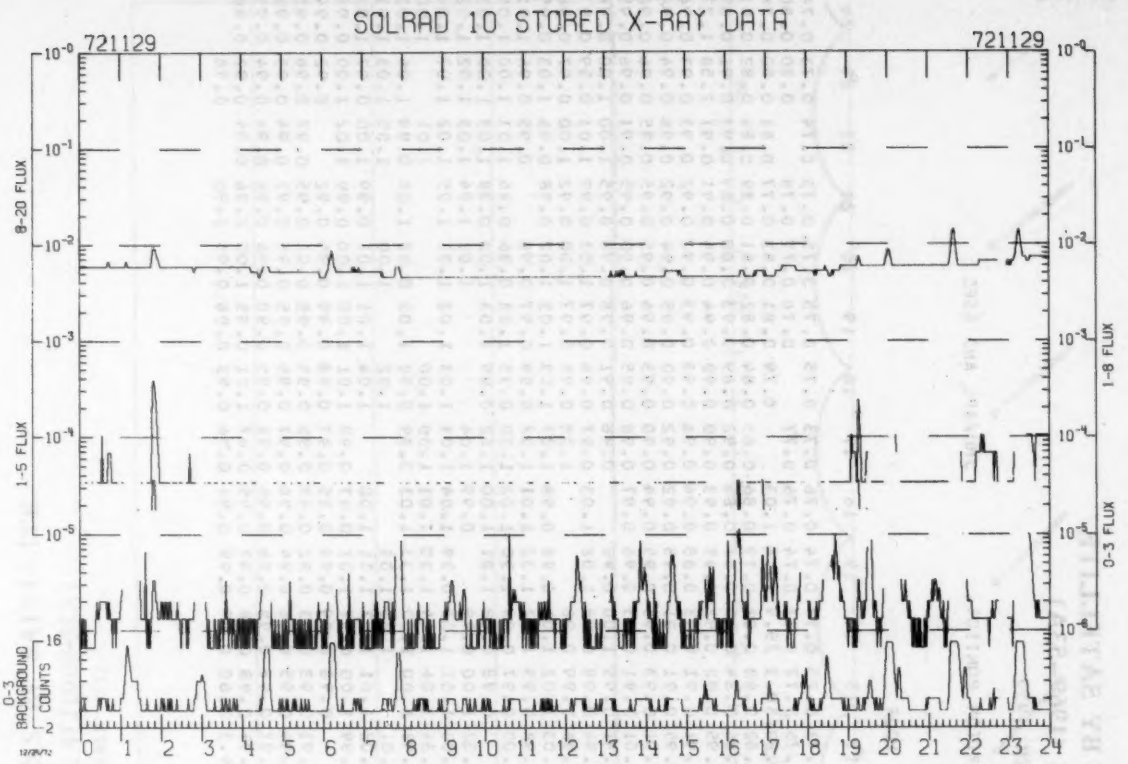
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721129
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1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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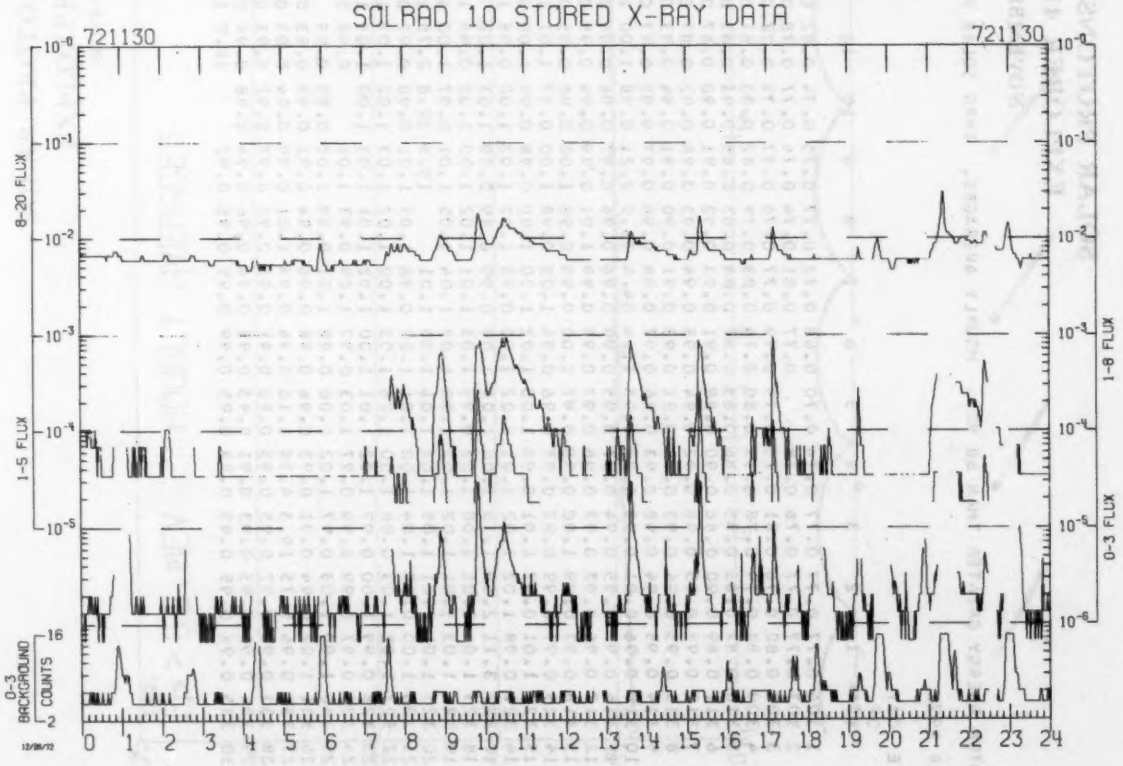
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8-20 FLUX
1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969–53A)
NOVEMBER 1972

PROTON ENERGY GREATER THAN 60 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

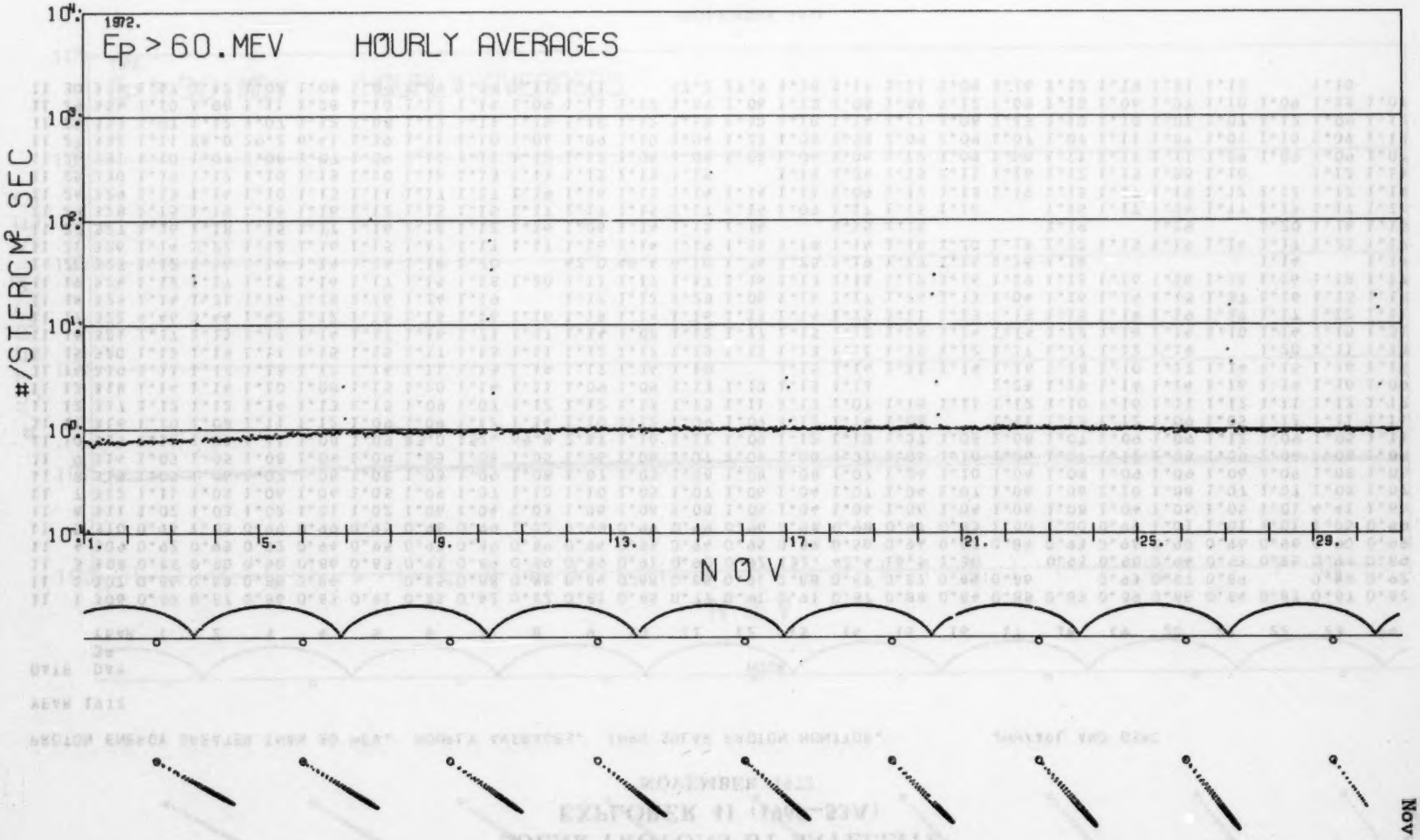
YEAR 1972

DATE		DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11	1	306	0.77	0.77	0.77	0.74	0.70	0.68	0.72	0.77	0.75	0.74	0.82	0.73	0.75	0.79	0.74	0.76	0.73	0.75	0.75	0.75	0.73	0.74	0.73	0.74
11	2	307	0.77	0.77	0.76	0.78		0.77	0.81	0.74	0.74	0.77	0.78	0.76	0.77	0.77	0.74	0.76	0.77		0.76	0.77	0.78		0.80	0.80
11	3	308	0.80	0.76	0.81	0.75	0.79	0.79	0.77	0.78	0.77	0.79	0.77	0.80	30.3	25.9	10.4	1.03		0.79	0.81	0.83	0.77	0.81	0.80	0.78
11	4	309	0.83	0.79	0.78	0.79	0.80	0.78	0.83	0.79	0.82	0.83	0.81	0.82	0.83	0.82	0.79	0.86	0.85	0.84	0.82	0.81	0.89	0.84	0.82	0.83
11	5	310	0.87	0.85	0.85	0.86	0.83	0.87	0.84	0.83	0.85	0.91	0.83	0.86	0.84	0.85	0.87	0.86	0.92	0.89	0.93	0.88	0.89	0.93	0.91	0.89
11	6	311	0.89	0.90	0.86	0.90	0.88	0.91	0.93	0.92	0.91	0.90	0.87	0.95	0.92	0.92	0.95	0.93	0.90	0.90	0.94	0.94	0.91	0.97	2.58	1.27
11	7	312	0.93	0.95	0.96	0.92	0.94	0.93	0.94	0.93	0.98	0.92	0.87	0.91	0.91	0.93	0.88	0.94	0.96	0.98	0.93	0.92	0.92	0.93	0.93	0.96
11	8	313	0.95	0.94	0.95	0.94	0.91	0.93	0.91	0.90	0.91	0.94	0.93	0.95	0.91	0.91	0.95	0.92	0.92	0.90	0.95	0.94	0.92	0.96	0.94	0.94
11	9	314	0.95	0.94	0.98	0.93	0.96	0.97	0.98	0.94	0.97	0.95	0.97	0.91	0.93	0.95	0.95	0.94	0.90	0.93	0.96	0.95	0.95	0.95	0.96	0.98
11	10	315	0.96	0.91	0.93	0.97	0.93	11.4	64.4	33.9	2.21	0.98	1.00	1.01	0.91	0.93	0.96	0.97	0.98	0.95	0.96	0.90	0.95	0.91	0.96	0.95
11	11	316	0.97	0.95	0.94	0.97	0.95	0.99	0.96	0.96	0.97	0.96	0.94	0.91	0.99	1.00	0.98		0.96	0.91	0.96	0.98	0.95	1.00	1.00	0.98
11	12	317	0.96	0.97	0.97	0.96	0.97	0.95	0.99	1.01	0.99	0.99	0.98	0.94	0.98	0.98	1.02	1.03	0.97	0.96	0.97	1.03	0.99	1.01	0.99	0.97
11	13	318	0.97	0.99	1.00	0.98	0.97	1.00	0.99	0.98	1.00	0.98	0.95	0.98	0.99	0.96			1.08	0.95	0.97	1.00	0.92	1.00	0.97	0.96
11	14	319	0.97	0.99	0.97	0.97	0.96	0.94	1.03	0.98	1.00	0.97	1.01	1.03	1.02	1.01	0.98	0.98	1.07	1.03	1.03	1.02	0.98	0.96	1.03	0.99
11	15	320	1.01	0.97	1.01	0.98	1.00	1.02	1.00	1.00	0.98	0.99	1.00	0.98	0.99	1.02	1.02	1.01	1.02	0.98	0.97	0.98		0.95	0.96	1.01
11	16	321	0.98	1.02	1.02	1.01	1.02	1.00	0.98	1.02	1.02	1.00	0.98	1.00	0.97	0.98	1.00	1.02	1.00	0.95	1.03	0.96	0.96	1.01	1.00	1.05
11	17	322	3.11	2.50	1.19	1.00	1.04	1.00	0.99	0.99	0.99	1.03	1.01		0.98	0.98	1.01	1.00	1.02	0.99	1.03	1.00	0.98	1.03	1.00	1.02
11	18	323	1.04	1.01	1.00	1.03	0.99	1.03	1.01	1.02	1.00	1.02	0.95	1.02	1.00	0.99		0.99	1.04			1.01	1.04	1.03	1.02	1.02
11	19	324	1.03	1.01	1.02	1.02	1.00	1.02	1.04	1.05	1.01	0.97	1.00	1.00	1.01	1.03	0.99	1.04	1.03	1.03	1.02	1.03	1.05	1.02	1.07	1.04
11	20	325	1.01	1.01	1.05	1.02	1.01	1.00	1.01		19.5	29.8	2.78	1.34	1.06	1.04	1.00	1.01	1.00	1.00				1.01		1.00
11	21	326	1.00	0.97	1.04	1.00	1.01	1.02	0.98	1.03	1.01	0.98	0.97	0.98	1.00	1.00	1.03	1.03	0.99	0.98	1.02	0.98	1.05	0.99	1.05	1.03
11	22	327	1.02	1.03	0.98	1.00	1.08	1.03	1.00	1.02	1.03	1.02	1.03	1.01		1.01	1.03			1.02		1.00		1.05	1.03	1.03
11	23	328	0.99	1.00	0.97	1.02	1.01	1.00	1.02	1.01	1.03	1.00	1.03	1.02	1.01	1.02	1.01	1.00		1.04	1.01	1.01	0.99	1.00	0.97	1.03
11	24	329	0.97	0.99	0.99	0.97	1.03	0.97	1.05	0.97	1.01		0.98	0.99	1.00	0.97	1.01	0.97	0.99	1.01	1.00	1.00	0.99	1.02	1.00	0.98
11	25	330	1.00	1.03	0.97	1.02	1.00	0.99	1.01	0.99	1.00	0.99	0.99		0.98	0.99	0.99	0.95	0.97	0.98	0.99	0.99	0.92		0.92	0.94
11	26	331	1.02	0.94	0.91	0.93	0.96	0.98	0.96	0.94	0.91	0.95	0.93	0.93	0.93	0.93	0.92	0.93	0.95	0.95	0.95	0.91	0.95	0.97	0.96	0.92
11	27	332	0.96	5.75	15.3	4.38	1.16	0.94	0.93	1.01	0.99	0.94	0.93	0.99	0.95	0.96	0.94	0.96	0.97	0.95	0.95	0.95	0.93	0.94	0.93	0.95
11	28	333	0.96	0.97	0.95	0.95	0.98	0.91	0.93	0.93	0.97	0.92	0.93	0.97	0.98	0.95	0.96	0.94	0.96	0.95	0.90	0.96	0.98	0.94	0.94	0.95
11	29	334	0.95	0.93	0.93	0.91	0.95	0.93	0.94	0.96	0.94	0.98	0.94	0.94	0.98	0.98	0.97	0.95	0.97	1.01	0.95	1.00	0.96	0.94	0.92	0.98
11	30	335	0.94	0.95	0.95	0.93	0.95	0.99	0.95	0.95	0.92		18.9	14.3	2.60	0.99	0.99	0.98	0.96	0.93	0.96	0.95	0.96		0.98	

SOLAR PROTONS BY SATELLITE

EXPLORER 41 (1969-53A)

NOVEMBER 1972



SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969–53A)
NOVEMBER 1972

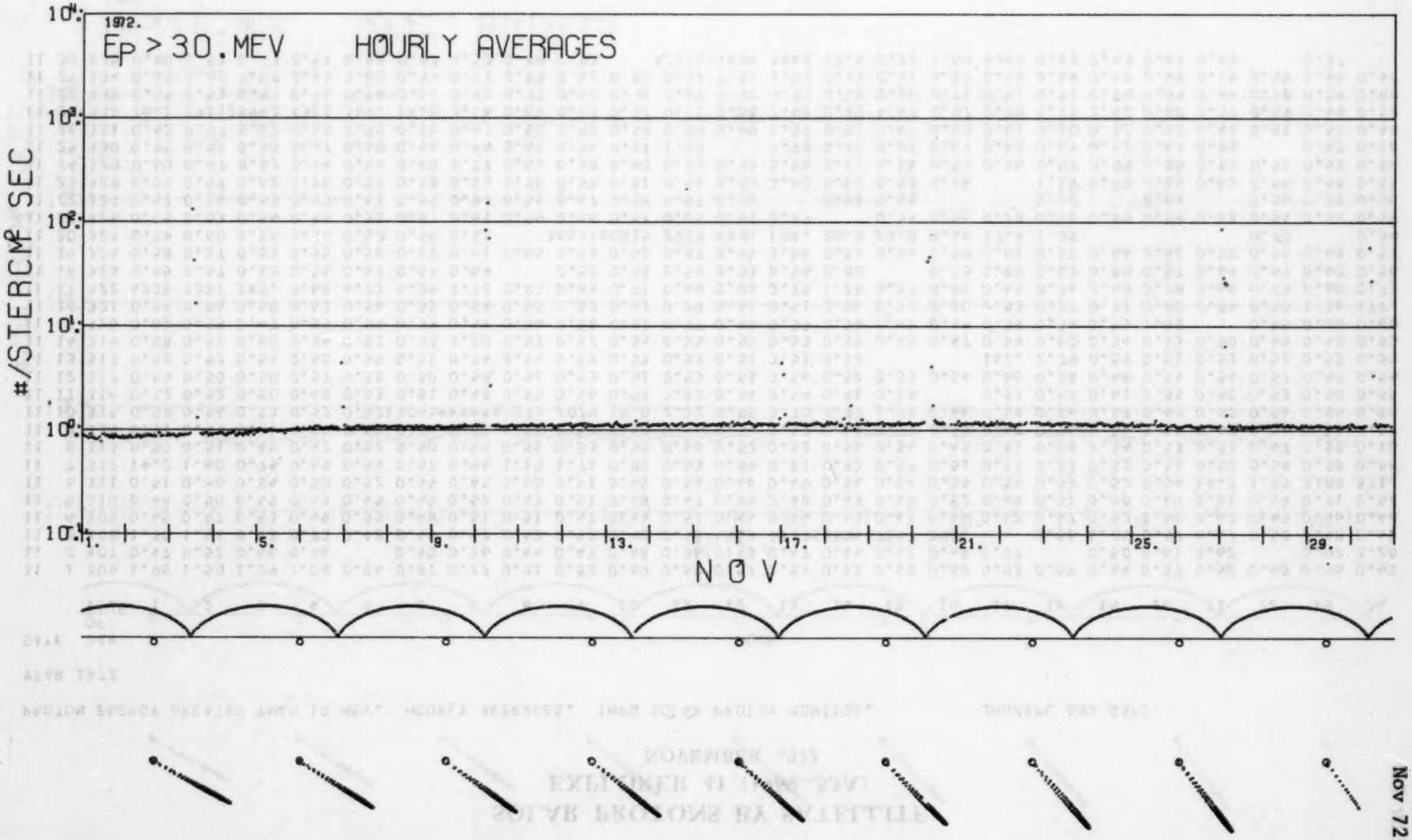
PROTON ENERGY GREATER THAN 30 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1972

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11 1	306	0.89	0.87	0.86	0.83	0.91	0.85	0.82	0.82	0.81	0.85	0.77	0.91	0.91	0.87	0.88	0.84	0.88	0.83	0.89	0.86	0.84	0.83	0.87	0.82
11 2	307	0.86	0.83	0.88	0.84		0.85	0.88	0.88	0.84	0.88	0.85	0.91	0.88	0.89	0.87	0.89	0.86		0.93	0.87	0.89		0.88	0.92
11 3	308	0.88	0.90	0.90	0.86	0.85	0.91	0.89	0.89	0.89	0.91	0.90	0.92	132.	42.4	16.5	1.30		0.93	0.90	0.94	0.93	0.88	0.93	0.89
11 4	309	0.92	0.93	0.92	0.94	0.95	0.93	0.89	0.89	0.94	0.93	0.94	0.96	0.89	0.88	0.94	0.92	0.89	0.93	0.96	0.90	0.96	0.96	0.90	0.99
11 5	310	0.95	1.03	0.99	0.99	0.95	0.96	0.99	1.02	0.98	0.99	0.99	0.96	0.98	0.98	0.97	0.93	1.00	1.00	0.99	1.01	1.01	1.01	1.05	0.99
11 6	311	1.02	1.03	1.02	1.01	1.02	1.06	1.04	1.03	1.08	1.08	1.08	1.05	1.04	1.04	1.06	1.04	1.06	1.08	1.04	1.06	1.05	1.01	4.41	1.66
11 7	312	1.11	1.03	1.06	1.04	1.05	1.05	1.07	1.10	1.10	1.05	1.07	1.06	1.04	1.07	1.04	1.07	1.06	1.06	1.10	1.08	1.07	1.07	1.08	1.07
11 8	313	1.05	1.06	1.07	1.08	1.08	1.03	1.09	1.08	1.07	1.03	1.08	1.08	1.08	1.07	1.04	1.10	1.04	1.08	1.09	1.09	1.06	1.05	1.08	1.06
11 9	314	1.05	1.05	1.08	1.09	1.09	1.05	1.06	1.05	1.06	1.06	1.07	1.09	1.06	1.07	1.06	1.10	1.06	1.07	1.12	1.08	1.09	1.08	1.08	1.09
11 10	315	1.12	1.08	1.11	1.08	1.09	83.0	152.	69.8	2.67	1.10	1.11	1.09	1.12	1.10	1.07	1.08	1.08	1.07	1.09	1.09	1.12	1.09	1.05	1.11
11 11	316	1.10	1.08	1.11	1.12	1.09	1.09	1.12	1.14	1.10	1.12	1.09	1.09	1.12	1.14	1.08		1.11	1.13	1.12	1.09	1.05	1.12	1.11	1.11
11 12	317	1.12	1.12	1.14	1.13	1.15	1.09	1.07	1.12	1.12	1.13	1.15	1.11	1.17	1.07	1.15	1.11	1.12	1.10	1.10	1.11	1.12	1.11	1.12	1.12
11 13	318	1.14	1.14	1.10	1.08	1.15	1.20	1.14	1.11	1.09	1.09	1.13	1.10	1.13	1.13			1.23	1.13	1.14	1.14	1.16	1.14	1.16	1.09
11 14	319	1.11	1.12	1.13	1.12	1.14	1.11	1.13	1.14	1.17	1.14	1.10		1.15	1.14	1.11	1.14	1.16	1.18	1.10	1.12	1.14	1.15	1.16	1.15
11 15	320	1.13	1.13	1.11	1.15	1.15	1.17	1.13	1.11	1.12	1.12	1.15	1.13	1.13	1.12	1.15	1.12	1.17	1.17	1.12	1.14		1.20	1.11	1.13
11 16	321	1.17	1.13	1.12	1.14	1.17	1.16	1.21	1.17	1.14	1.08	1.12	1.17	1.15	1.12	1.16	1.14	1.14	1.12	1.16	1.14	1.10	1.14	1.15	1.31
11 17	322	4.46	3.44	1.42	1.12	1.18	1.15	1.16	1.16	1.18	1.14	1.16	1.13	1.14	1.15	1.11	1.13	1.13	1.15	1.14	1.19	1.17	1.17	1.12	1.11
11 18	323	1.14	1.21	1.14	1.18	1.16	1.14	1.19		1.12	1.12	1.29	1.06	1.16	1.17	1.74	1.13	1.04	1.16	1.14	1.15	1.27	1.16	1.13	1.18
11 19	324	1.12	1.17	1.15	1.14	1.17	1.15	1.18	1.20	1.11	1.17	1.17	1.16	1.13	1.16	1.12	1.16	1.19	1.13	1.16	1.16	1.15	1.16	1.18	1.17
11 20	325	1.12	1.16	1.16	1.14	1.16	1.18	1.20		42.0	46.4	4.10	1.74	1.25	1.19	1.18	1.16	1.18	1.16				1.14		1.14
11 21	326	1.14	1.22	1.12	1.16	1.15	1.17	1.17	1.17	1.16	1.14	1.19	1.16	1.18	1.14	1.15	1.20	1.14	1.12	1.13	1.19	1.14	1.17	1.23	1.17
11 22	327	1.16	1.18	1.15	1.17	1.16	1.18	1.12	1.14	1.08	1.14	1.15	1.14		1.15	1.18			1.19		1.19		1.20	1.16	1.15
11 23	328	1.15	1.15	1.18	1.16	1.12	1.13	1.15	1.17	1.17	1.15	1.17	1.19	1.09	1.17	1.15	1.16		1.16	1.17	1.14	1.17	1.13	1.17	1.16
11 24	329	1.13	1.14	1.10	1.13	1.11	1.17	1.17	1.19	1.16	1.13	1.14	1.14	1.11	1.09	1.12	1.13	1.19	1.13	1.17	1.15	1.12	1.12	1.12	1.14
11 25	330	1.19	1.12	1.10	1.13	1.10	1.16	1.13	1.13	1.13	1.13	1.15		1.16	1.24	1.13	1.11	1.16	1.12	1.13	1.05	1.10		1.12	1.13
11 26	331	1.10	1.07	1.08	1.07	1.09	1.11	1.11	1.12	1.12	1.08	1.08	1.08	1.06	1.06	1.12	1.09	1.09	1.11	1.11	1.11	1.09	1.09	1.09	1.07
11 27	332	1.11	86.0	29.2	6.41	1.39	1.11	1.10	1.06	1.09	1.10	1.04	1.13	1.08	1.03	1.09	1.09	1.07	1.07	1.11	1.07	1.07	1.10	1.09	1.12
11 28	333	1.07	1.12	1.07	1.12	1.08	1.13	1.11	1.15	1.10	1.12	1.15	1.10	1.10	1.14	1.11	1.08	1.13	1.10	1.10	1.07	1.07	1.12	1.09	1.12
11 29	334	1.10	1.08	1.11	1.08	1.10	1.12	1.14	1.09	1.11	1.10	1.09	1.06	1.10	1.08	1.08	1.12	1.09	1.10	1.06	1.07	1.10	1.09	1.13	1.06
11 30	335	1.17	1.12	1.08	1.08	1.09	1.09	1.07	1.11	1.11		57.2	27.5	3.38	1.17	1.11	1.09	1.16	1.12	1.13	1.11	1.13		1.10	

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969 53A)

NOVEMBER 1972



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SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969–53A)
NOVEMBER 1972

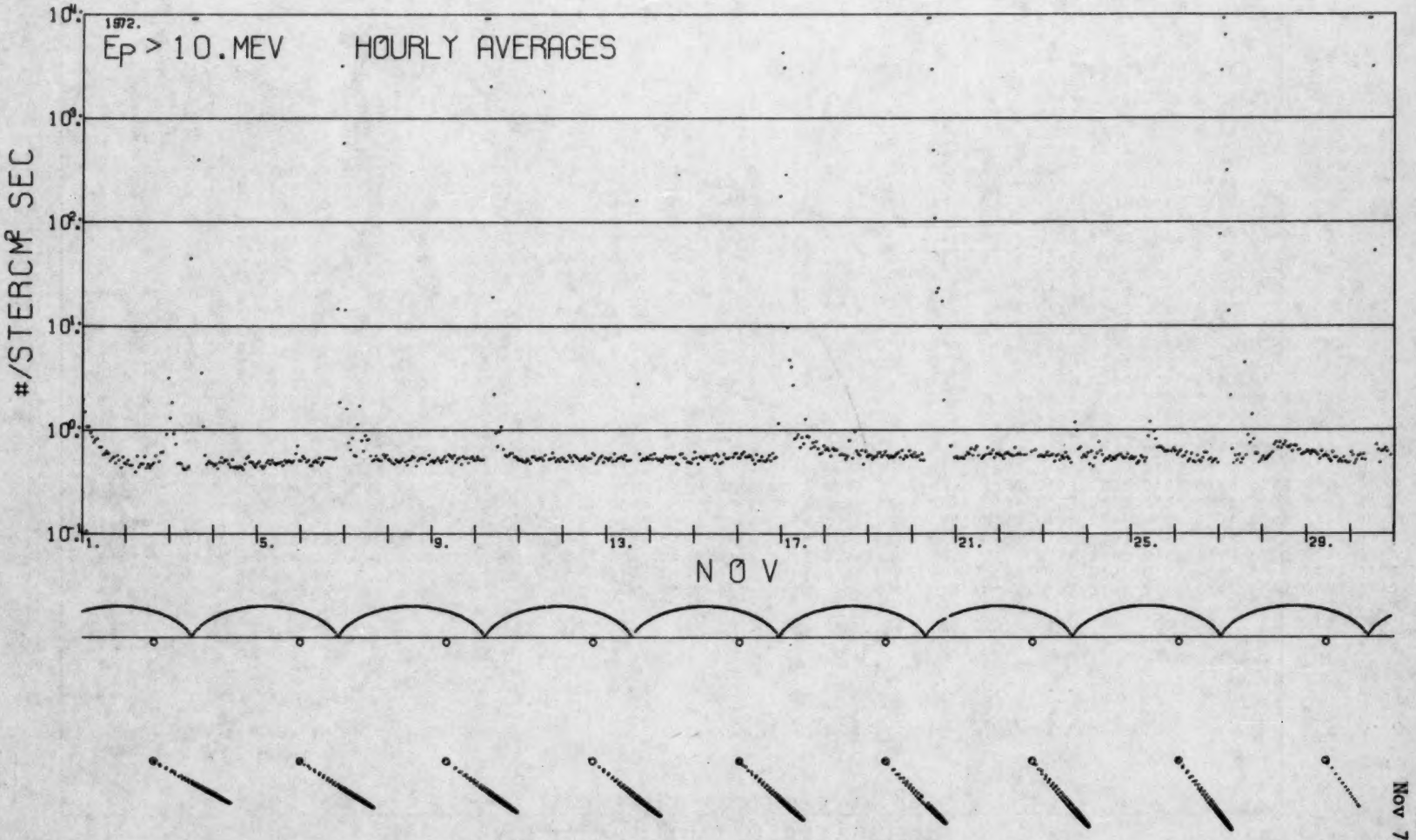
PROTON ENERGY GREATER THAN 10 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1972

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11 1	306	1.96	1.50	1.09	1.08	0.94	0.87	0.77	0.81	0.83	0.69	0.69	0.58	0.59	0.62	0.50	0.50	0.53	0.55	0.48	0.57	0.52	0.43	0.55	0.48
11 2	307	0.47	0.52	0.46	0.46		0.40	0.56	0.44	0.47	0.48	0.56	0.43	0.47	0.44	0.47	0.49	0.57		0.50	0.61	0.62		0.92	3.20
11 3	308	1.30	1.84	0.93	0.73	0.48	0.49	0.47	0.43	0.42	0.42	0.45	44.5	977	758	536	175	57	397.		3.56	1.09	0.57	0.47	0.50	0.48	0.48
11 4	309	0.45	0.47	0.43	0.49	0.55	0.48	0.51	0.51	0.47	0.44	0.52	0.44	0.44	0.43	0.45	0.44	0.42	0.47	0.53	0.56	0.49	0.49	0.46	0.44
11 5	310	0.48	0.50	0.45	0.43	0.45	0.49	0.52	0.47	0.51	0.49	0.47	0.48	0.48	0.49	0.45	0.52	0.49	0.51	0.50	0.49	0.51	0.59	0.71	0.51
11 6	311	0.51	0.56	0.54	0.50	0.52	0.45	0.45	0.50	0.51	0.49	0.54	0.46	0.49	0.54	0.54	0.54	0.54	0.53	0.52	0.54	14.7	1.85	3188	571.
11 7	312	14.2	1.60	0.75	0.65	0.84	0.57	0.56	1.15	1.71	0.80	0.63	0.89	0.81	0.82	0.57	0.51	0.52	0.57	0.52	0.51	0.50	0.58	0.55	0.58
11 8	313	0.53	0.51	0.49	0.47	0.52	0.50	0.49	0.51	0.53	0.50	0.46	0.52	0.52	0.55	0.54	0.45	0.51	0.54	0.54	0.53	0.53	0.47	0.58	0.50
11 9	314	0.51	0.49	0.51	0.54	0.51	0.49	0.52	0.56	0.50	0.58	0.56	0.54	0.57	0.49	0.53	0.55	0.47	0.56	0.54	0.54	0.49	0.54	0.56	0.52
11 10	315	0.52	0.56	0.53	0.52	0.52	13046	*****	60272	2029	19.0	2.22	0.95	0.70	0.97	1.08	0.66	0.58	0.56	0.57	0.60	0.60	0.56	0.55	0.53
11 11	316	0.52	0.52	0.50	0.49	0.53	0.51	0.48	0.55	0.56	0.53	0.52	0.54	0.54	0.51	0.58		0.53	0.53	0.61	0.55	0.50	0.53	0.50	0.55
11 12	317	0.53	0.50	0.50	0.57	0.55	0.50	0.58	0.56	0.53	0.51	0.53	0.53	0.56	0.52	0.53	0.54	0.60	0.58	0.48	0.51	0.54	0.57	0.49	0.54
11 13	318	0.53	0.52	0.54	0.50	0.59	0.51	0.54	0.54	0.55	0.53	0.57	0.51	0.51	0.52			162.	2.79	0.59	0.51	0.53	0.52	0.55	0.53
11 14	319	0.58	0.52	0.60	0.54	0.52	0.53	0.50	0.53	0.57	0.54	0.55	0.55	0.53	0.55	0.48	0.47	0.59	0.60	0.54	0.53	0.50	0.49	0.48	0.53
11 15	320	0.62	0.55	0.47	0.55	0.54	0.53	0.56	0.56	0.56	0.52	0.57	0.48	0.59	0.55	0.48	0.49	0.59	0.54	0.53	0.55		0.55	0.60	0.60
11 16	321	0.54	0.54	0.59	0.62	0.56	0.55	0.58	0.55	0.52	0.47	0.59	0.51	0.51	0.56	0.50	0.50	0.53	0.57	0.51	0.60	0.54	0.55	1.16	178.
11 17	322	4238	3037	283.	9.68	4.72	4.05	2.72	0.83	0.85	0.91	0.68	0.85	0.75	1.28	0.87	0.86	0.67	0.76	0.69	0.78	0.66	0.59	0.60	0.71
11 18	323	0.65	0.67	0.63	0.56	0.67	0.64	0.64		0.58	0.58	0.58	0.53	0.56	0.80		0.53	0.96	0.63	0.59	0.57	0.64	0.47	0.62	0.56
11 19	324	0.58	0.57	0.53	0.55	0.56	0.60	0.61	0.56	0.58	0.62	0.57	0.54	0.56	0.54	0.56	0.59	0.61	0.55	0.64	0.52	0.57	0.55	0.63	0.57
11 20	325	0.55	0.60	0.55	0.56	0.52	0.59	0.51		3663	760	515	2923	488.	108.	20.9	23.0	9.56	17.4	1.95			0.70		0.54
11 21	326	0.55	0.53	0.54	0.54	0.53	0.57	0.61	0.59	0.66	0.57	0.65	0.69	0.57		0.53	0.56	0.58	0.68	0.59	0.59	0.63	0.54	0.59	0.59
11 22	327	0.57	0.56	0.53	0.59	0.61	0.59	0.57	0.56	0.67	0.58	0.59	0.58		0.58	0.58			0.62		0.64		0.56	0.57	0.56
11 23	328	0.55	0.57	0.62	0.56	0.57	0.58	0.50	0.56	0.58	0.51	0.56	0.53	0.60	0.55	0.53	0.48		1.19	0.99	0.65	0.68	0.54	0.58	0.55
11 24	329	0.60	0.47	0.62	0.44	0.54	0.60	0.77	0.63	0.58	0.50	0.53	0.53	0.56	0.51	0.54	0.52	0.56	0.57	0.59	0.55	0.53	0.54	0.59	0.52
11 25	330	0.55	0.53	0.55	0.47	0.50	0.56	0.54	0.49	0.54	0.87	1.20		0.98	0.82	0.57	0.69	0.68	0.65	0.62	0.63	0.63		0.62	0.66
11 26	331	0.62	0.57	0.62	0.63	0.55	0.56	0.61	0.50	0.52	0.59	0.50	0.49	0.57	0.51	0.49	0.53	0.61	0.60	0.52	0.53	0.49	0.51	0.52	0.48
11 27	332	76.2	291	128	942	6328	314.	14.0	2.16	0.65	0.48	0.57	0.51	0.58	0.48	0.53	4.47	0.57	0.89	0.75	1.42	0.82	0.59	0.59	0.49	0.52
11 28	333	0.55	0.51	0.53	0.55	0.58	0.61	0.72	0.77	0.68	0.76	0.67	0.72	0.77	0.69	0.58	0.71	0.63	0.71	0.70	0.64	0.64	0.58	0.59	0.60
11 29	334	0.63	0.62	0.58	0.63	0.62	0.59	0.57	0.53	0.62	0.56	0.57	0.56	0.52	0.49	0.51	0.55	0.54	0.49	0.52	0.49	0.55	0.49	0.48	0.49
11 30	335	0.60	0.57	0.47	0.51	0.56	0.57	0.52	0.58	0.52		323	742	489	4	3143	52.4	0.72	0.64	0.48	0.63	0.63	0.67	0.62		0.57	

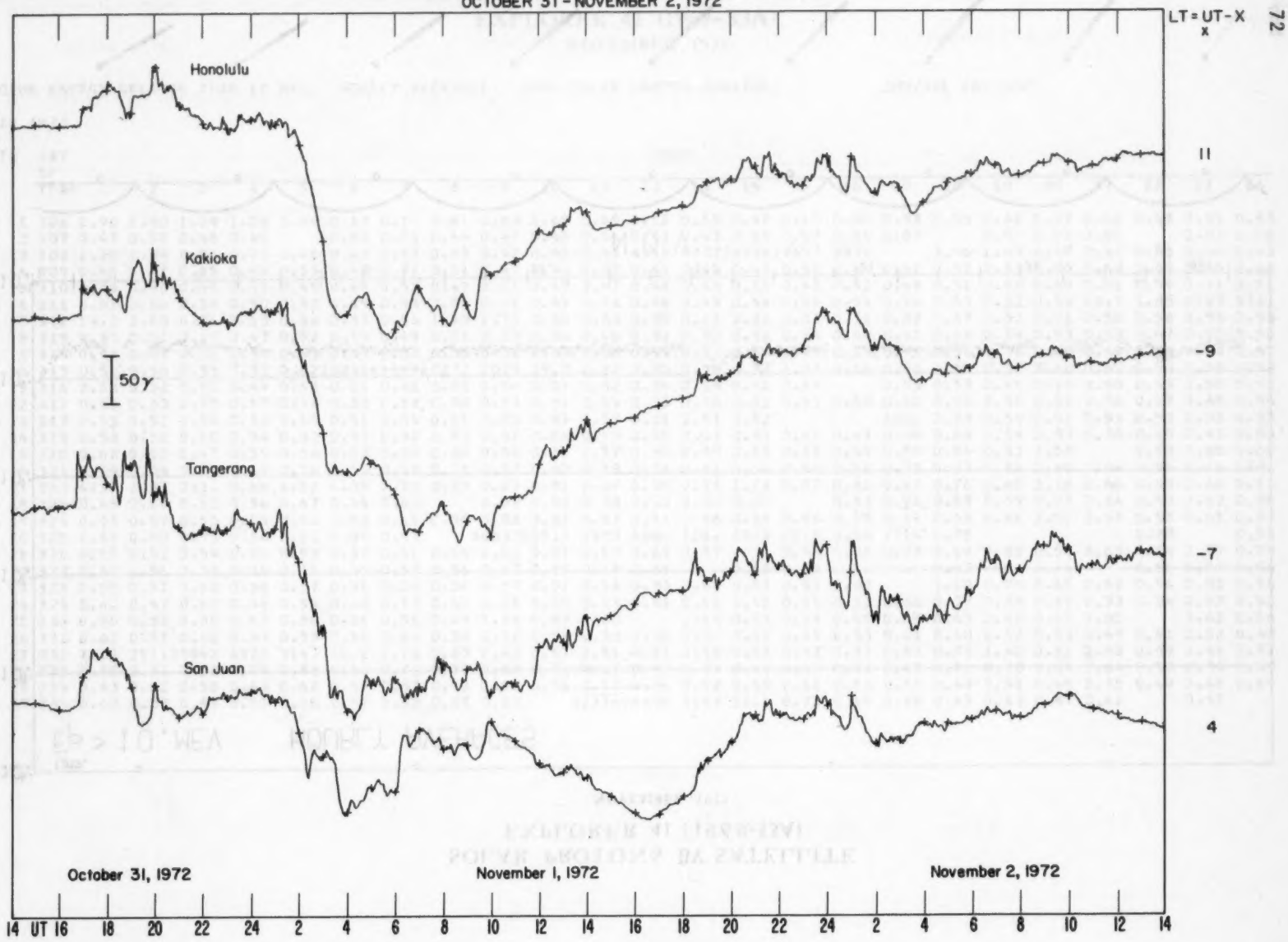
SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

NOVEMBER 1972



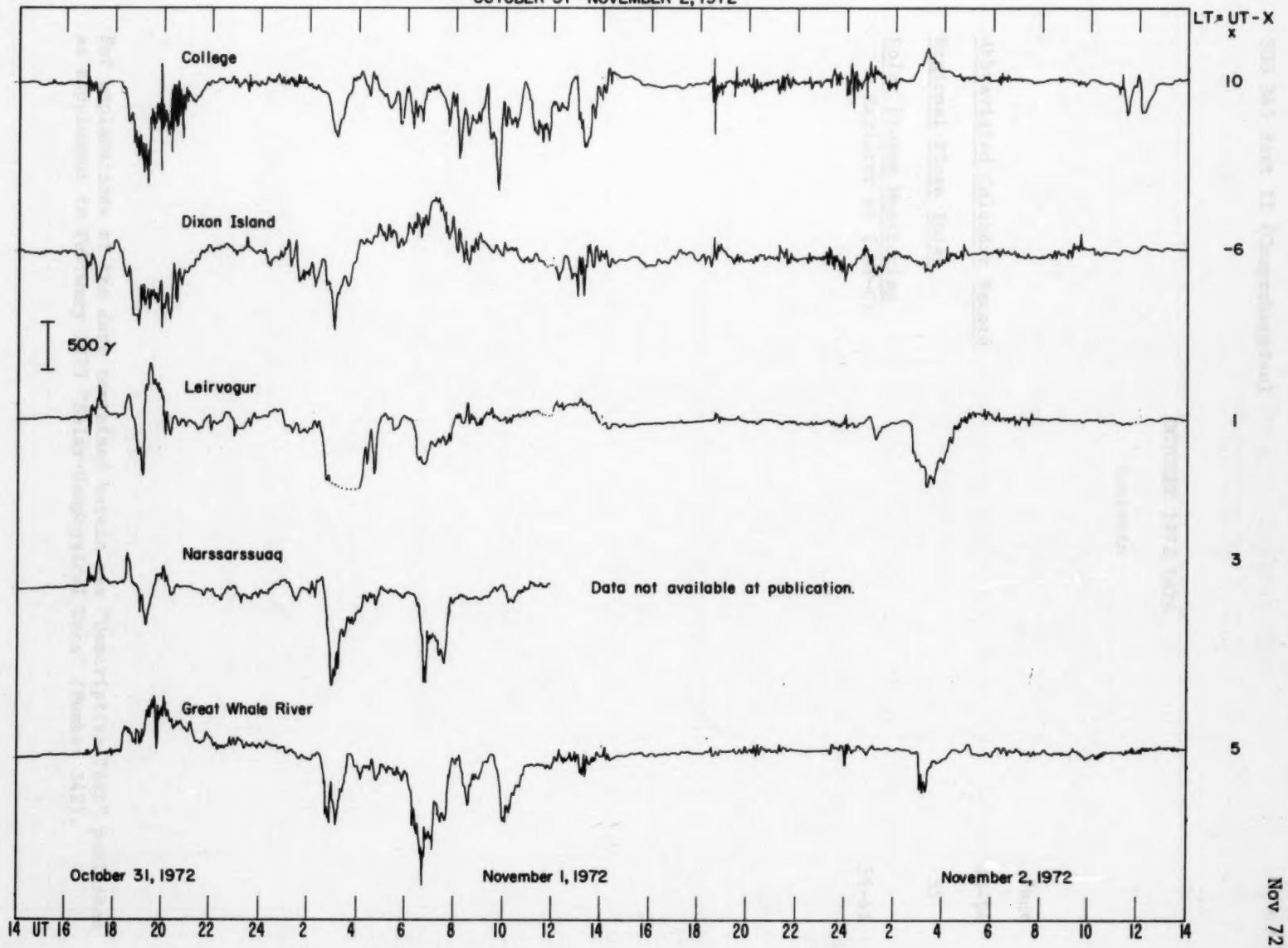
MAGNETOGRAMS OF GEOMAGNETIC STORMS

OCTOBER 31 - NOVEMBER 2, 1972

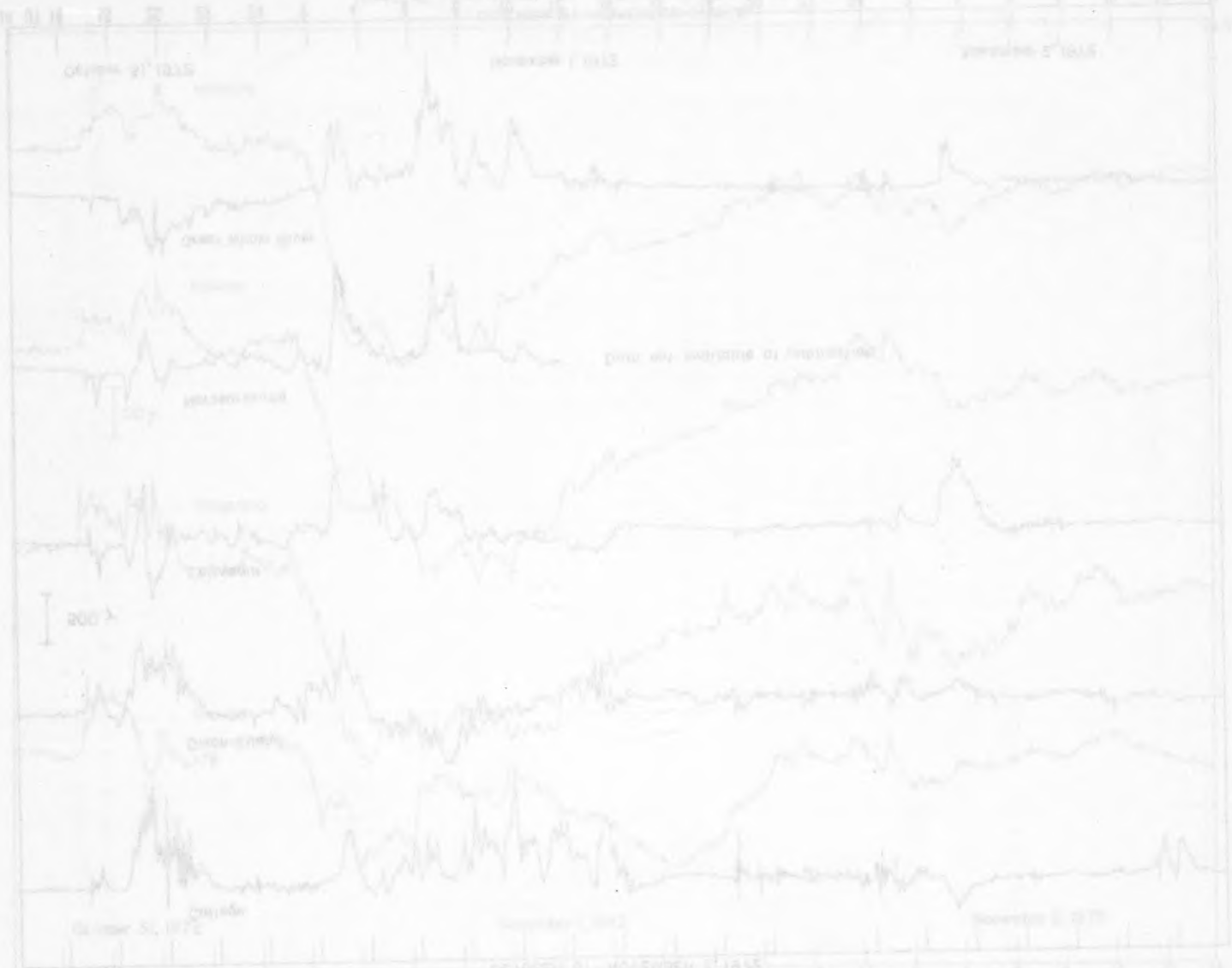


MAGNETOGRAMS OF GEOMAGNETIC STORMS

OCTOBER 31 - NOVEMBER 2, 1972



45
Nov 72



OCTOBER 1972 DATA

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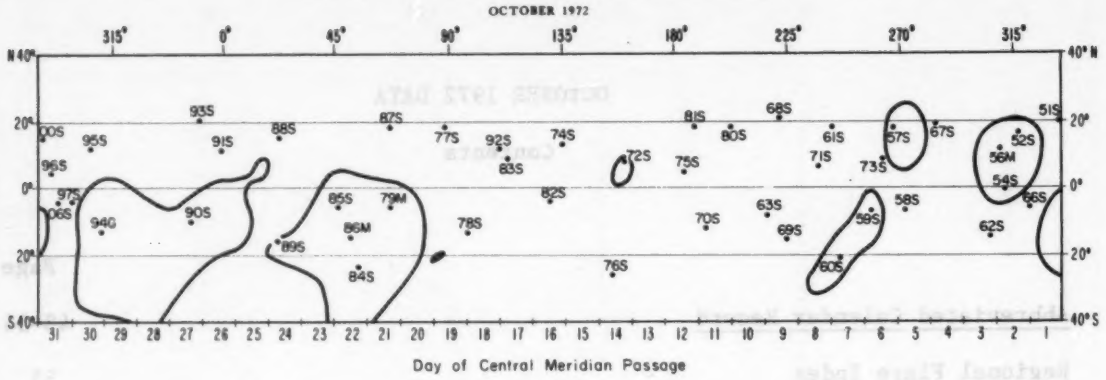
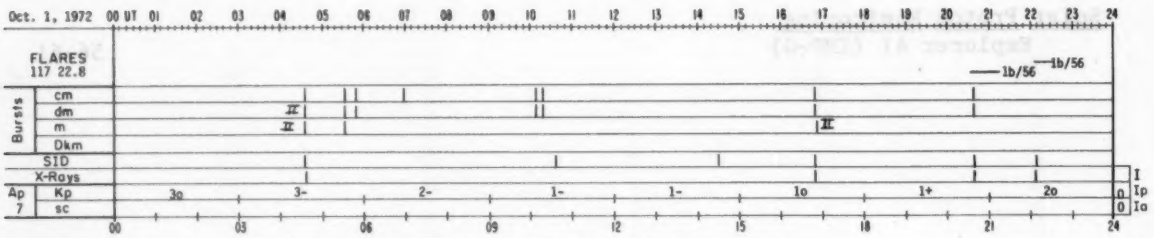
Solar Proton Monitoring Explorer 41 (IMP-G)	56-61

For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

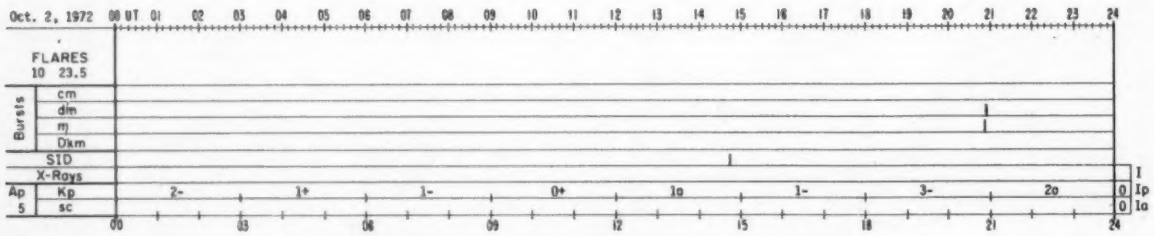
ABBREVIATED CALENDAR RECORD





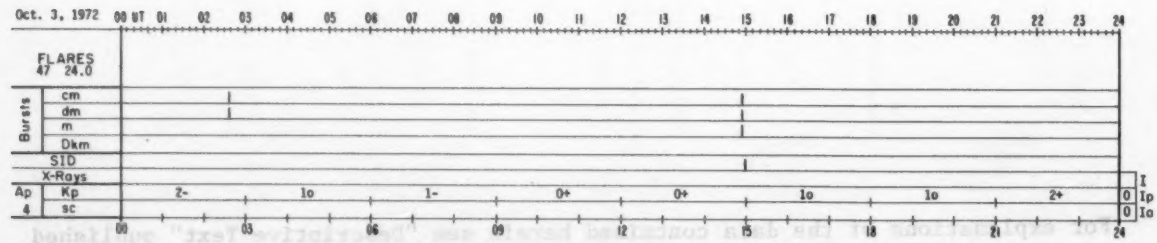
114 10 cm flux
70 Rz (Final)
CMP 12051 N20 (3)
(12066) S06

Very br. green corona 7 days earlier on SE limb, moderately br. green corona 7 days earlier on NE limb.



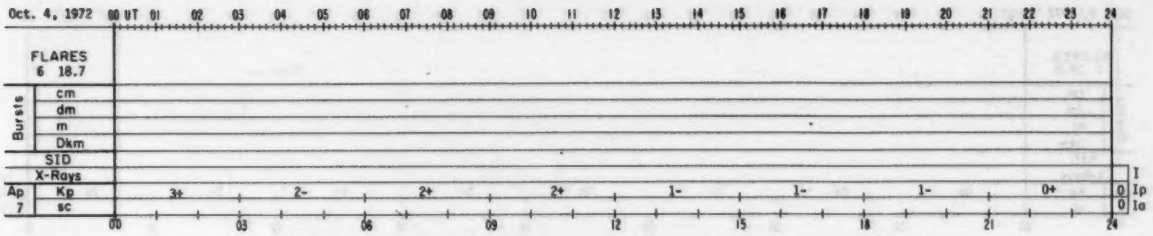
108 10 cm flux
65 Rz
CMP 12052 N17 (3)
12054 S01
12056 N12 19000 N11 B

One of ten most magnetically quiet days; no coronal data 7 days earlier on E. limb.



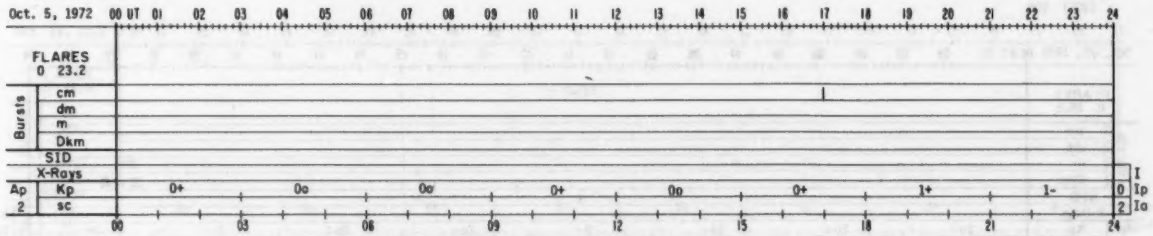
107 10 cm flux
73 Rz
CMP (12062) S15 (19011) S14 (Bf)2

One of five most magnetically quiet days; very br. green corona 7 days later on SW limb and moderately br. green corona 7 days later on NW limb.



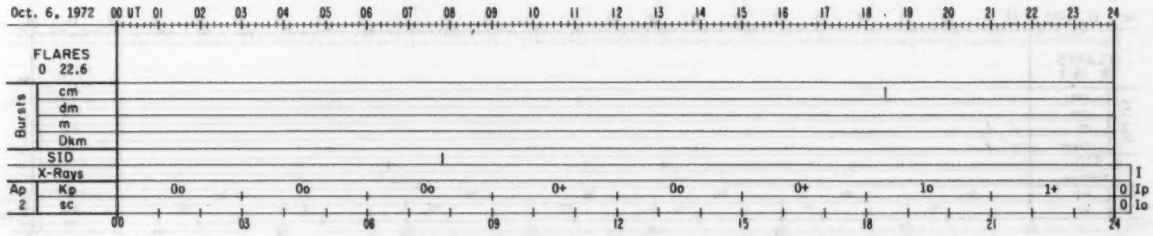
103 10 cm flux
73 Rz
CMP 12067 N19 19007 N17 (βf)2

One of ten most magnetically quiet days; moderately br. green corona 7 days later on NW limb.



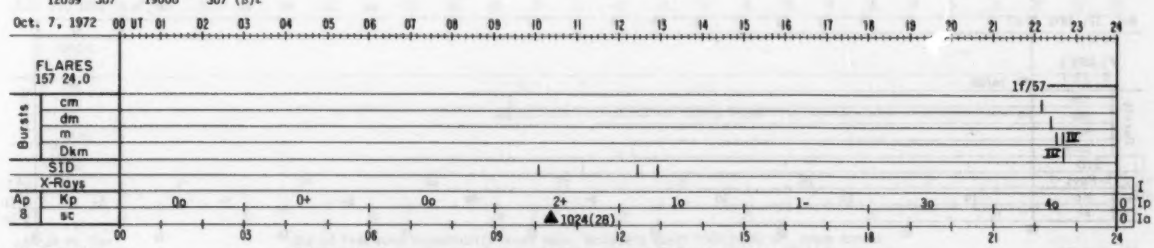
101 10 cm flux
67 Rz
CMP 12058 S07 19001 S09 (βp)3
19009 S04 (βp)1

One of five most magnetically quiet days, extremely quiet to 2100;
no coronal data 7 days later on W. limb.



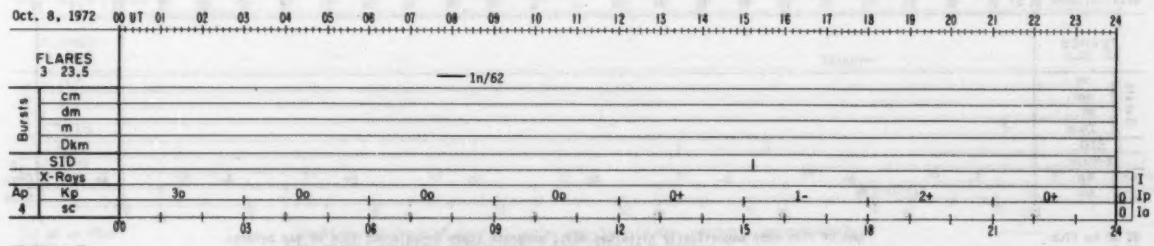
98 10 cm flux
57 Rz
CMP 12057 N18 19002 N17 (βp 5 CMP Oct. 5
19003,10 N20 αp CMP Oct. 5
(19004) N16 (αp)2
(12073) N08 (19012) N10 βp
12059 S07 19008 S07 (β)2

One of five most magnetically quiet days, extremely quiet to 2100; br. green corona 7 days earlier on SE limb, moderately br. green corona 7 days earlier on NE limb.



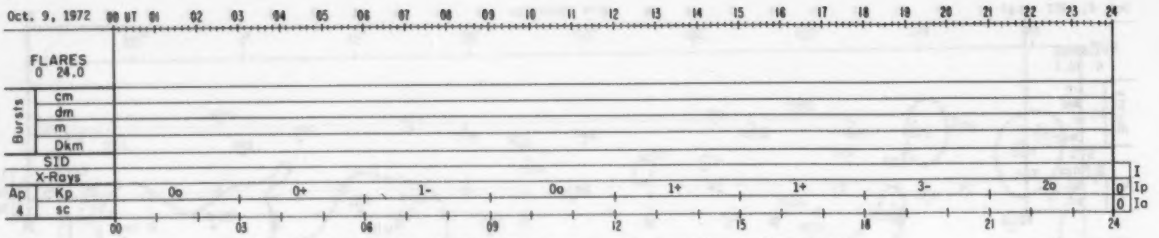
96 10 cm flux
54 Rz
CMP 12060 S22 19006 S24 (αp)2
12061 N18 (4) (19005) N19 (αp)3

Moderately br. green corona 7 days earlier on NE and SE limb and 7 days later on SW limb.



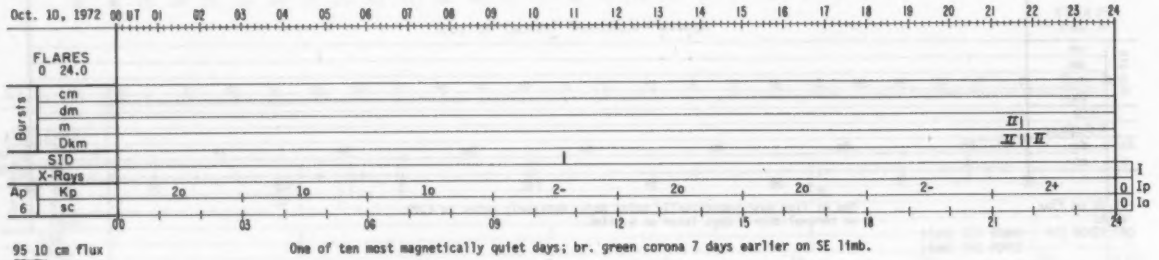
97 10 cm flux
52 Rz
CMP 12071 N07

One of five most magnetically quiet days, extremely quiet 0300-1800;
very br. green corona 7 days earlier on SE limb.



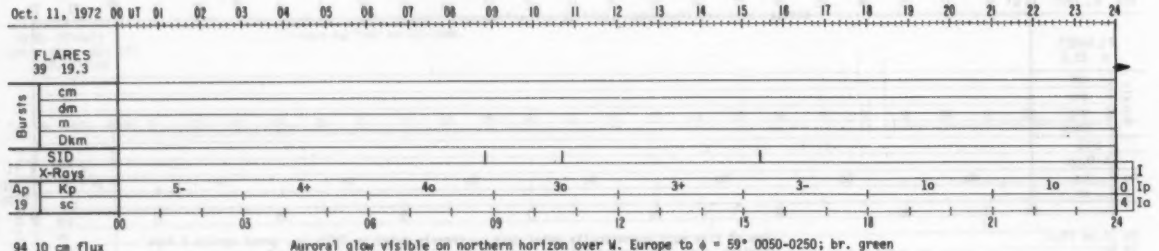
101 10 cm flux
34 Rz
CMP 12069 S16 (5)
(12068) N20
12063 S08

One of ten most magnetically quiet days; br. green corona 7 days earlier on SE limb.



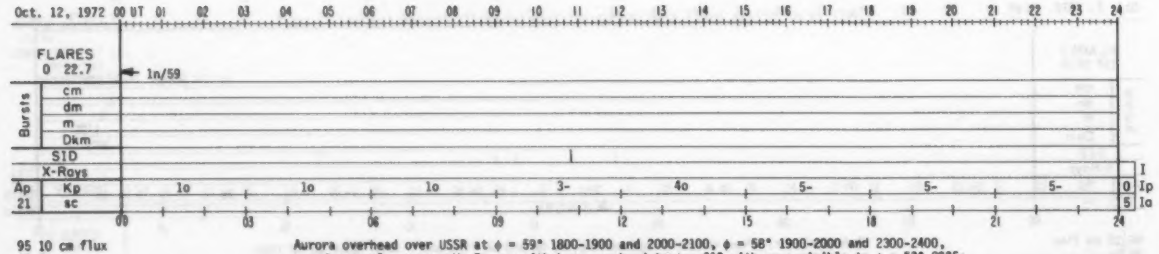
95 10 cm flux
30 Rz

One of ten most magnetically quiet days; br. green corona 7 days earlier on SE limb.



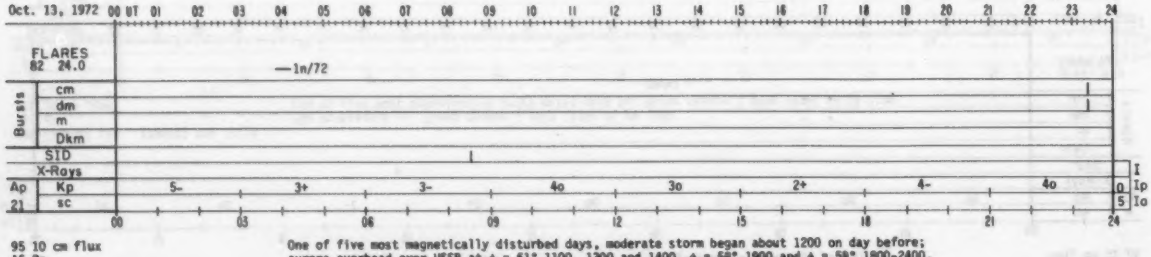
94 10 cm flux
34 Rz
CMP (12080) N18 19014 N20 (αf)2
12070 S12 (3)

Auroral glow visible on northern horizon over W. Europe to ϕ = 59° 0050-0250; br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



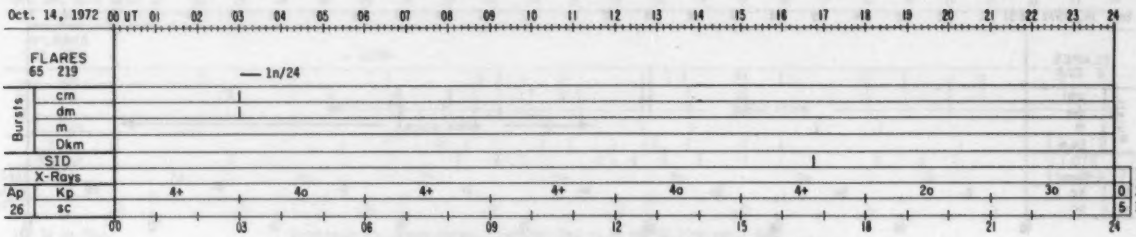
95 10 cm flux
23 Rz
CMP (12081) N18 (19015) N18 (βf)2
12075 N04

Aurora overhead over USSR at ϕ = 59° 1800-1900 and 2000-2100, ϕ = 58° 1900-2000 and 2300-2400, rayed auroral arc over W. Europe with base overhead to ϕ = 61° with rays visible to ϕ = 53° 2035; moderately br. green corona 7 days earlier on NE and SE limb.



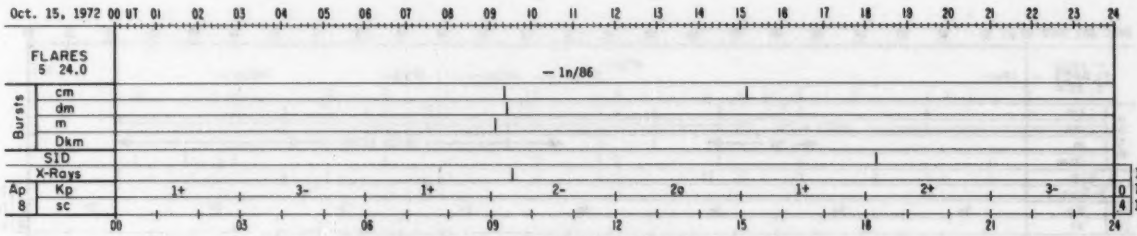
95 10 cm flux
15 Rz

One of five most magnetically disturbed days, moderate storm began about 1200 on day before; aurora overhead over USSR at ϕ = 61° 1100, 1300 and 1400, ϕ = 58° 1900 and ϕ = 59° 1800-2400, auroral glow visible on northern horizon over W. Europe to ϕ = 59° 2100-2315; br. green corona 7 days earlier on NE and SE limb and 7 days later on NW limb, moderately br. green corona 7 days later on SW limb.



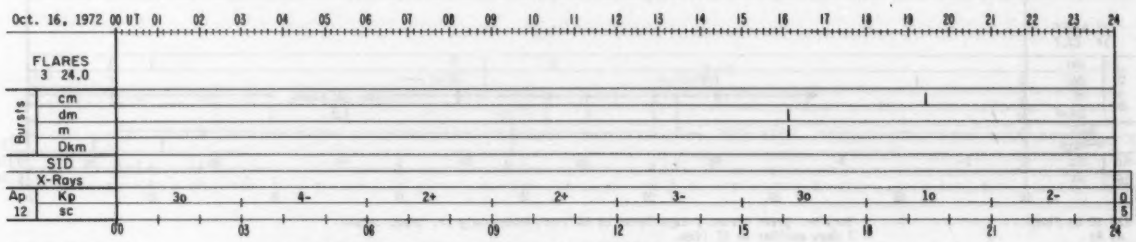
98 10 cm flux
8 Rz
CMP 12072 N08 (2) 19013 N07
(12076) S26

One of five most magnetically disturbed days with moderate activity to 2100; moderately br. green corona 7 days earlier on NE limb and 7 days later on NW limb.



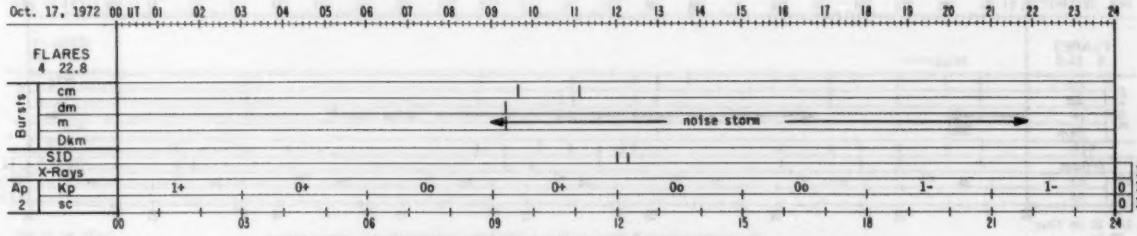
103 10 cm flux
14 Rz

Aurora overhead over USSR at ϕ = 59° 1700-2200; moderately br. green corona 7 days earlier at E. limb.



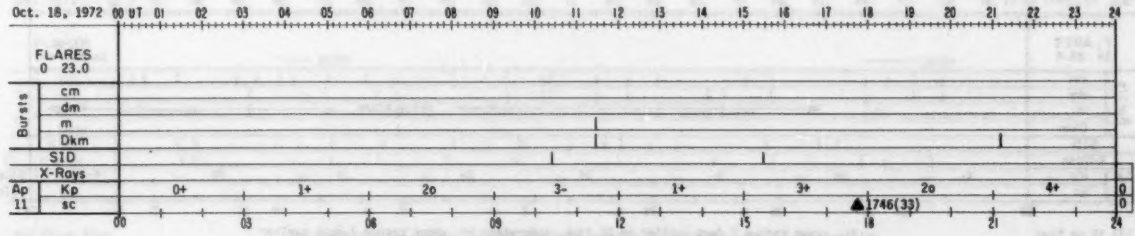
107 10 cm flux
34 Rz
CMP 12074 N13 (2)
12082 S04

Moderately br. green corona 7 days earlier on NE limb.



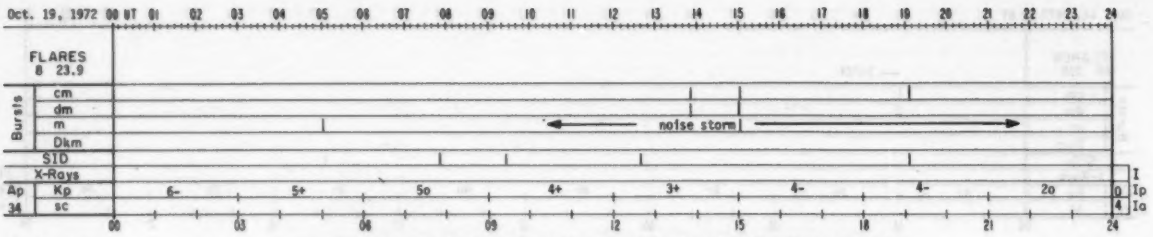
113 10 cm flux
30 Rz
CMP 12083 N09
(12092) N12

One of five most magnetically quiet days, extremely quiet 0300-2100; br. green corona 7 days later on NW limb, moderately br. green corona 7 days earlier on NE limb.



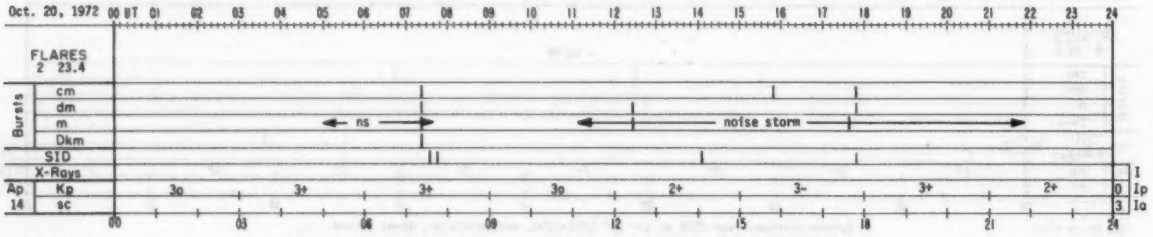
112 10 cm flux
28 Rz
CMP 12078 S13 (4)

Cosmic ray decrease of about 5% begins very late in day, reaches a maximum middle of day on October 19; no coronal data 7 days later on W. limb.



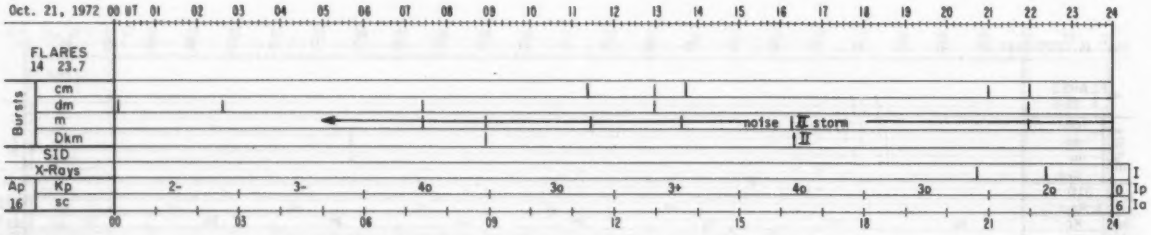
118 10 cm flux
44 Rz
CMP 12077 N18 (2)

One of five most magnetically disturbed days, with moderate storm after the sc on previous day; rayed auroral band over W. Europe, base overhead to ϕ = 65°, visible as glow on horizon to ϕ = 54° 0310-0320; cosmic ray decrease of previous day reaches a maximum near middle of day; moderately br. green corona 7 days earlier on NE limb, no coronal data 7 days later on W. limb.



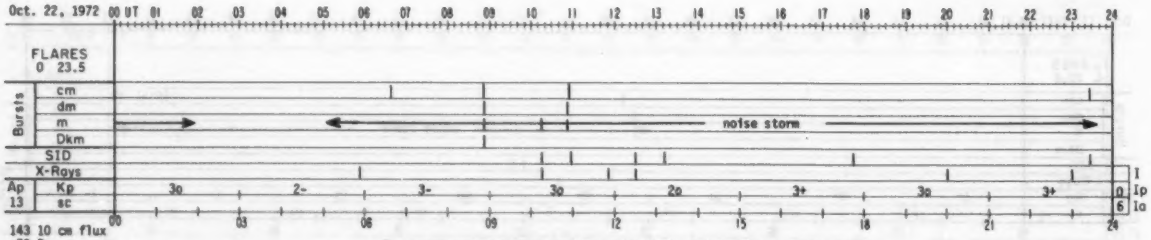
123 10 cm flux
60 Rz

Br. green corona 7 days earlier on NE limb and moderately br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.



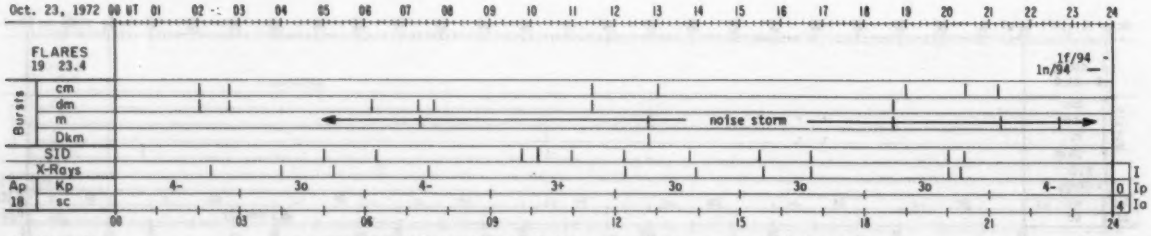
134 10 cm flux
69 Rz
CMP 12079 S06 19016 S07 (βf)4
(12087) N18

Very br. green corona 7 days later on SW limb, moderately br. green corona 7 days earlier on SE limb.



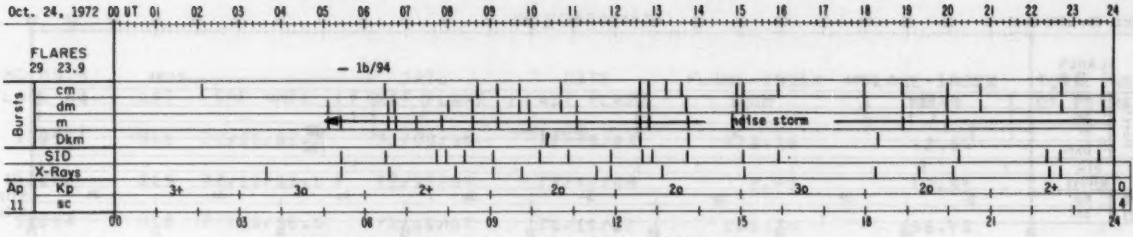
143 10 cm flux
78 Rz
CMP 12084 S23 (4)
12086 S15 19017 S16 (βp)6
19020 S12 (αp)3
12085 S06 (4) (19018) S17 (αp)2 CMP Oct. 23
19021 S06 (βp)4

Br. green corona 7 days earlier on SE limb, moderately br. green corona 7 days later at W. limb.



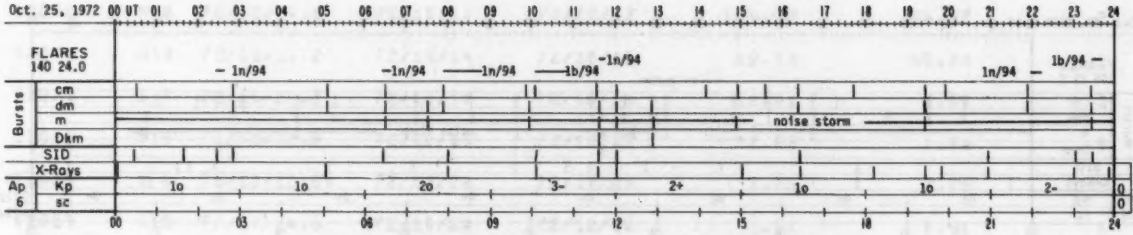
153 10 cm flux
85 Rz

Br. green corona 7 days earlier on SE limb, moderately br. green corona 7 days earlier on NW limb and 7 days later on SW limb.



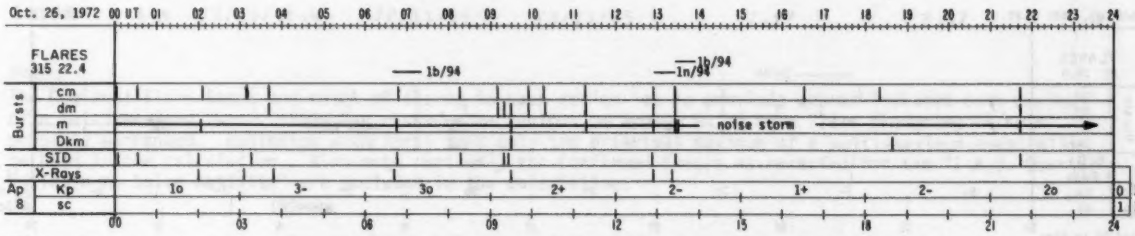
158 10 cm flux
94 Rz
CMP 12088 N15 (5)
12089 S16 19019 S15 (βp 4

Moderately br. green corona 7 days earlier on NE and SE limb and 7 days later on NW and SW limb.



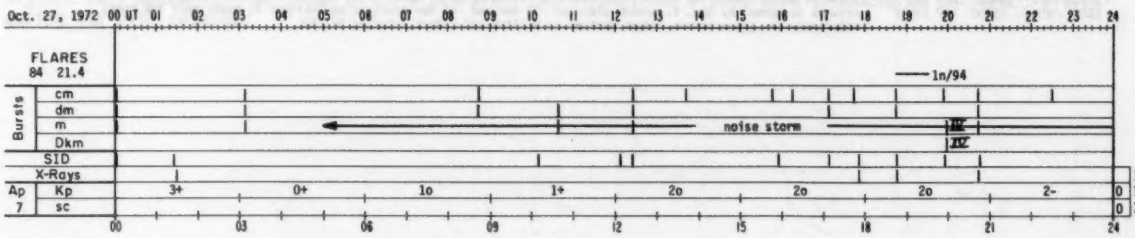
174 10 cm flux
105 Rz

One of ten most magnetically quiet days; no coronal data 7 days earlier on E. limb, very br. green corona 7 days later on SW limb and moderately br. green corona 7 days later on NW limb.

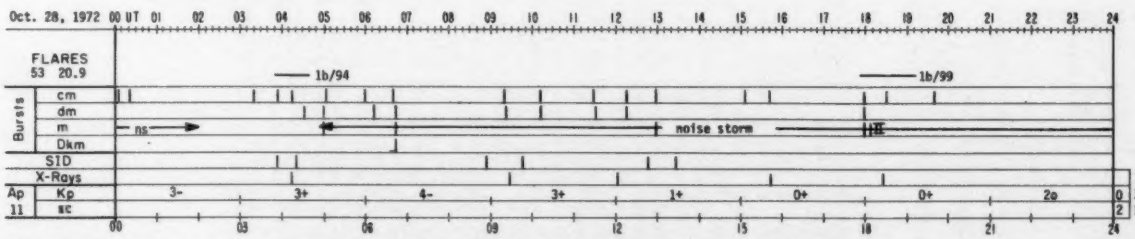


172 10 cm flux
111 Rz
CMP 12091 N12 (19027) N14 (βp)2

Moderately br. green corona 7 days earlier on NE limb, no coronal data 7 days later on W. limb.

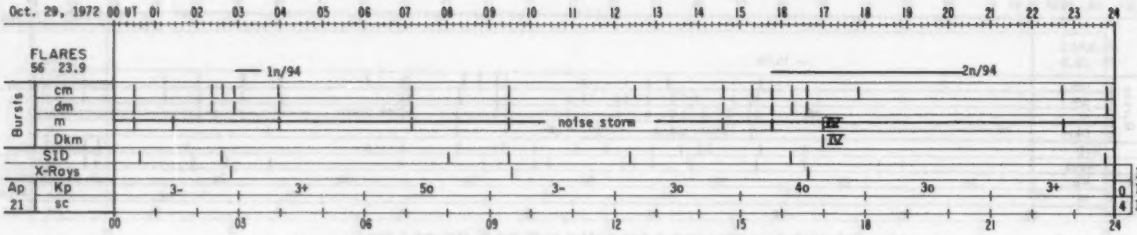


170 10 cm flux
110 Rz
CMP 12093 N21
12090 S10 (2) 19022 S10 (αp)4
19023 S16 (βp)3
(19025) S14 βp CMP Oct. 26



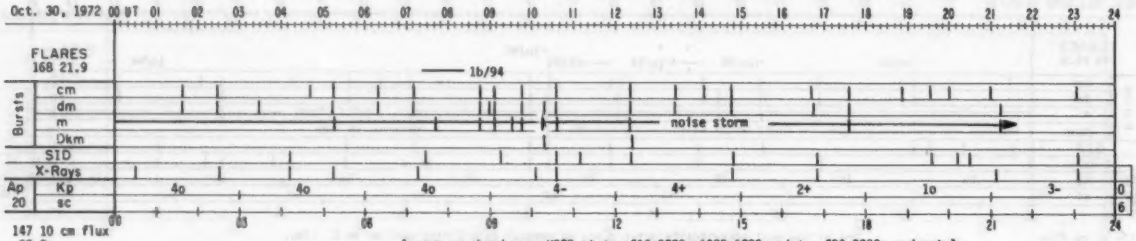
161 10 cm flux
104 Rz

Br. green coronal 7 days later on SW limb, moderately br. green corona 7 days earlier on SE limb and 7 days later on SW limb.



B.I.P. 10 cm flux
89 Rz

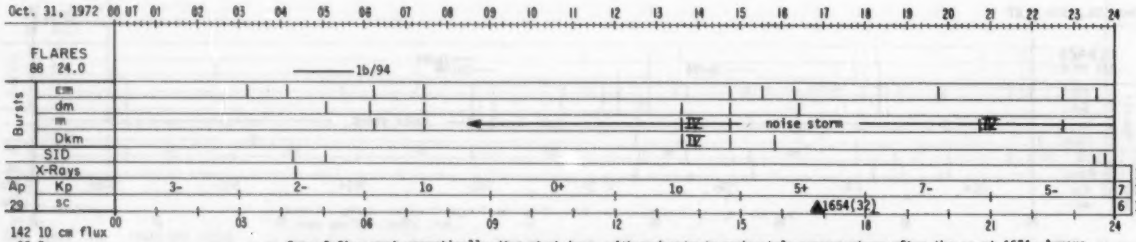
One of five most magnetically disturbed days, with slight-to-moderate activity continuing until 2100 of following day; aurora overhead over USSR at ϕ = 61° 1100, proton increase on >30 Mev and >10 Mev counters on Explorer 41 begins near end of day, peaks on Oct. 31 and returns to normal by Nov. 1; moderately br. green corona 7 days later on SW limb.



147 10 cm flux
98 Rz
CMP 12094 S13 (2) 19026 S13 (δ)7
12095 N12 (2) (19028) N08 (βγ)2
(12097) S04

Aurora overhead over USSR at ϕ = 61° 0800, 1000-1200 and ϕ = 60° 0900; moderately br. green corona 7 days earlier on NE and SE limb.

CMP Oct. 29



142 10 cm flux
93 Rz
CMP 12096 N04 (19029) N01 (αp)1
(19032) N02 (αp)1
(12106) S04 (19037) S04 (β) 2
12100 N15 19030 N17 (βp)2

One of five most magnetically disturbed days, with moderate to moderately severe storm after the sc at 1654; Aurora overhead over USSR at ϕ = 61° 1700-1800 and ϕ = 58° 2000-2300, rayed auroral band, sometimes multiple over W. Europe, base overhead to ϕ = 61° - 62° and rays visible to ϕ = 54° 1840-2000, thereafter display concealed by cloud to 0200; cosmic ray decrease of about 7% begins abruptly about 1700, reaches a maximum Nov. 1 and slowly returns to normal by Nov. 6; proton event on >30 Mev and >10 Mev counters on Explorer 41 peaks near 3rd hour; moderately br. green corona 7 days earlier on NE limb and 7 days later on SW limb.

REGIONAL FLARE INDEX

OCTOBER 1972

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
12056	N11	72/10/02.7	72/09/30	72/10/03	170.15	42.54	10
12062	S15	72/10/03.1	72/10/08	72/10/08	2.51	2.51	1
12057	N18	72/10/06.1	72/10/07	72/10/07	156.76	156.76	1
12059	S 6	72/10/06.8	72/10/04	72/10/11	22.82	2.85	4
12080	N18	72/10/11.0	72/10/15	72/10/15	2.89	2.89	1
12072	N 8	72/10/14.1	72/10/11	72/10/13	104.92	34.97	2
12074	N13	72/10/16.2	72/10/14	72/10/14	65.28	65.28	1
12079	S 7	72/10/21.3	72/10/16	72/10/19	12.01	3.00	3
12086	S15	72/10/22.5	72/10/15	72/10/27	22.68	1.74	5
12085	S 6	72/10/22.8	72/10/28	72/10/28	2.76	2.76	1
12089	S16	72/10/24.6	72/10/20	72/10/20	1.91	1.91	1
12090	S10	72/10/27.5	72/10/21	72/11/01	14.88	1.24	3
12094	S12	72/10/30.0	72/10/23	72/11/05	959.10	68.51	76
12106	S 4	72/10/31.4	72/11/05	72/11/05	2.17	2.17	2

Note:
The Regional Flare Index and count of flares in each region has in previous months included each maximum of a multi-maximum event. This has caused some regions to appear to be more flare producing than is probably warranted. Beginning with April 1972 only the principal maximum of a multi-maximum event will be used in the calculation. Also note that only the Confirmed Events as selected for the "I.A.U. Quarterly Bulletin on Solar Activity" are included in the calculation.

Because of differences in method of calculation, the dates of Central Meridian Passage for the McMath Plage Regions vary somewhat from those given elsewhere. Any region not listed here produced no confirmed flares during its disk passage.

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

OCTOBER 1972

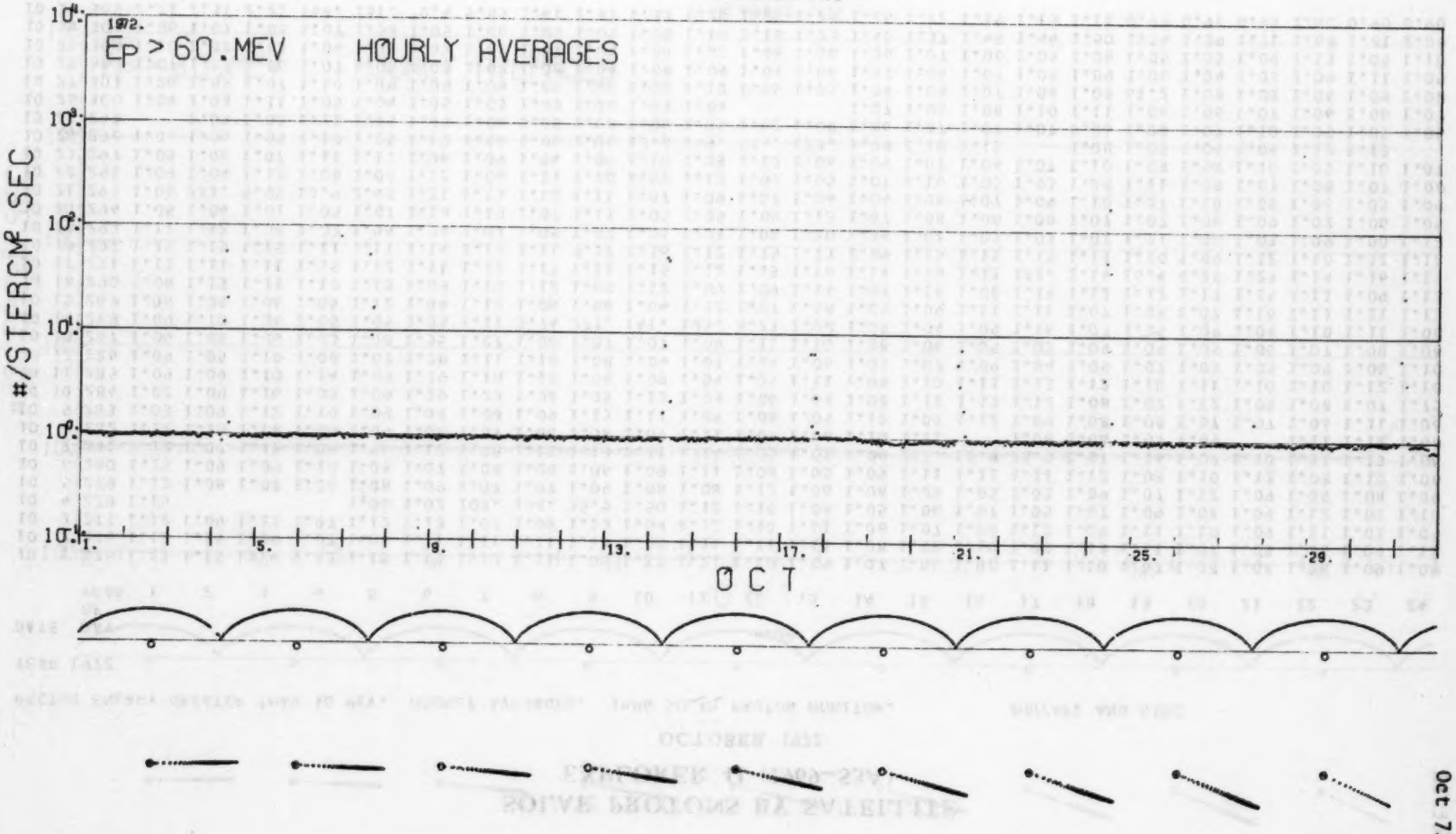
PROTON ENERGY GREATER THAN 60 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1972

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10 1	275	0.97	1.00	0.99	1.00	0.97	0.95	0.96	0.99	0.96	0.97	0.98	0.98	0.93	0.97	0.97	0.91	0.93	0.93	0.97	0.94	0.97	0.94	0.96	0.95
10 2	276	0.97	0.95	0.97	0.96	0.96	0.99	0.97	0.97	0.96	0.95	0.99	0.96	0.97	0.99	0.93	0.96	0.94	1.01	0.98	0.97	0.95	0.95	0.94	0.98
10 3	277	0.95	0.98	1.02	0.96	0.96	0.98	0.97	0.96	0.99	0.97	0.94	0.96	0.96	1.00	0.98	0.94	0.91	0.92	0.97	0.97	0.98	0.96	0.95	0.93
10 4	278	1.00				0.97	0.86	11.9	55.6	19.9	1.26	0.92	0.94	0.94	0.97	0.91	0.92	0.95	0.95	0.94	0.93	0.97	0.94	0.93	0.96
10 5	279	0.93	0.95	0.93	0.92	0.98	0.97	0.95	0.99	0.97	0.95	0.95	0.93	0.96	0.95	0.94	0.93	0.93	0.92	0.98	0.94	0.99	1.00	0.98	0.98
10 6	280	0.94	0.95	0.98	0.96	0.95	0.96	0.95	0.94	0.95	0.95	0.89	0.93	0.94	0.98	0.95	0.95	0.95	0.97	0.96	0.96	0.98	1.01	1.00	0.96
10 7	281	0.91	1.00	1.01	0.95	0.94	0.97	0.94	0.97	0.96	0.96	0.94	0.93	1.00	0.95	52.9	8.93	16.4	1.65	0.99	0.92	0.99	0.94	1.00	0.96
10 8	282	0.96	0.94	0.95	0.96	0.96	0.94	0.95	0.96	0.94	0.95	0.98	0.95	0.94	0.95	0.93		0.95	0.93	0.99	0.94		0.95	0.94	0.99
10 9	283	0.96	0.93	0.99	0.93	0.90	0.98	0.93	0.98	0.95	0.94	0.94	0.98	0.96	0.96	1.00	0.93	0.97	0.97	0.99	0.94	0.91	1.00	0.93	0.93
10 10	284	0.95	0.98	0.95	0.97	0.94	1.00	0.94	1.00	0.96	0.96	0.94	0.96	0.96	0.93	0.94	0.96	0.95	0.96	1.00	0.97	0.96	0.94	0.96	0.91
10 11	285	0.96	0.97	0.97	0.91	0.94	0.91	0.95	0.99	0.97	0.97	0.95	0.93	0.96	0.95	0.97	0.94	0.94	1.00	0.96	0.95	0.91	0.95	0.98	0.94
10 12	286	0.97	0.91	0.94	0.96	0.97	0.96	0.97	0.98	0.94	0.96	0.96	0.97	0.92	0.95	0.99	0.94	0.97	0.97	0.92	0.95	0.93	0.95	0.97	0.90
10 13	287	0.98	0.93	0.93	0.92	0.92	0.92	0.96	0.95	0.91	0.93	0.92	0.95	0.95	0.93	0.90	0.95	0.93	0.94	0.99	0.95	0.93	0.93	0.94	0.95
10 14	288	0.93	0.92	0.95	0.94	0.96	0.94	0.91	1.71	7.56	52.5	49.1	2.19	0.98	0.96	0.93	0.92	0.97	0.96	0.96	0.98	0.99	0.93	0.95	0.98
10 15	289	0.92	0.93	0.96	0.93	0.95	0.96	0.93	0.91	1.00	0.97	0.99	0.97	0.94	0.95	0.96	0.97	0.96	0.97	0.97	0.95	0.96	0.98	0.96	0.97
10 16	290	0.97	0.96	0.94	0.96	0.98	0.96	1.02	0.95	0.96	1.00	0.94	0.98	0.95	0.93	0.96	1.00	0.98	0.97	0.98	0.98	0.97	1.00	0.99	0.97
10 17	291	0.95	1.00	0.99	0.97	0.97	0.99	1.00	1.01	0.97	0.98	0.97	0.99	1.01	0.96	0.99	0.95	6.43	1.31	6.40	2.44	1.13	1.02	0.99	1.01
10 18	292	1.00	1.02	0.98	1.02	1.00	1.00	1.02	0.98	1.02	0.98	0.98	1.01	0.99	1.00	1.00	0.99	1.04	1.03	0.97	0.99	0.99	0.94	0.97	0.94
10 19	293	0.95	0.94	0.91	0.97	0.92	0.96	0.92	0.88	0.96	0.93	0.93	0.93	0.90	0.91	0.89	0.89	0.89	0.91	0.92	0.86	0.92	0.95	0.92	0.91
10 20	294	0.91	0.92	0.92	0.93	0.96	0.93	0.94	0.93	0.93	0.93	0.93	0.95	0.94	0.94	0.94	0.93	0.95	0.90	0.91	0.96	0.88	0.94	0.95	0.91
10 21	295	0.99	5.21	3.23	7.25	1.88	1.09	0.98	0.94	0.93	0.94	0.93	0.93	0.97	0.95	0.94	0.95	0.90	0.94	0.94	0.93	0.95	0.98	0.99	0.97
10 22	296	0.97	0.96	0.96	0.91	0.99	0.95	0.90	0.94	0.95	0.95	0.93	0.95	0.96	0.94	0.93	0.98	0.91	0.97	0.92	0.96	0.97	0.94	0.97	0.94
10 23	297	0.95	0.96	0.95	0.92	0.97	0.94	0.93	0.94	0.91	0.93	0.93	0.96	0.99	0.93	0.94	0.93	0.95	0.94	0.97	0.98	0.92	0.91	0.94	0.95
10 24	298	0.96	0.94	0.93	0.94	0.97	0.93	0.97	0.97	0.91	3.74	49.9	166.	40.8	1.49	0.95	1.01		0.96	0.96	0.94	0.94	0.94	0.98	
10 25	299		0.96	0.95	0.94	0.95	0.91	0.92	0.92	0.96	0.89	0.95	0.92	0.96	0.94	0.95	0.95	0.90	0.94	0.97	0.93	0.99	0.95	0.92	0.91
10 26	300	0.96	0.95	0.92	0.96	0.94	0.96	0.91	0.91	0.90	0.95	0.94			0.92	0.92	1.00	0.93	0.93	0.94	0.93		0.93	0.92	0.96
10 27	301	0.92	0.96	0.93	0.94	0.90	0.93	0.94	0.93	0.92	0.95	0.97	0.94	0.88	0.96	0.94	0.96	0.92	0.96	1.45	0.92	0.93	0.92	0.93	0.92
10 28	302	0.92	0.95	0.94	0.93	0.93	0.92	0.94	0.93	0.91	0.95	0.92	0.93	0.90	0.93	0.94	0.90	0.88	0.91	0.92	0.92	0.95	0.90	0.94	0.96
10 29	303	0.94	0.95	0.94	0.90	0.93	0.96	0.92	0.93	0.88	0.92	0.96	0.91	0.90	0.87	0.91	0.91	0.92	0.92	0.95	0.94	0.94	0.94	0.91	0.95
10 30	304	0.95	0.89	0.91	0.89	0.96	0.91	0.96	0.89	0.93	0.95	0.95	0.95	0.97	0.94	0.95	0.92	0.96	0.92	0.92	0.91	0.95	0.94	0.95	1.00
10 31	305	0.94	0.94	0.99	6.05	40.0	24.2	3.55	1.01	0.91	0.92	0.92	0.92	0.92	0.92	0.93	0.94	0.91	0.89	0.88	0.79	0.80	0.82	0.79	0.79

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

OCTOBER 1972



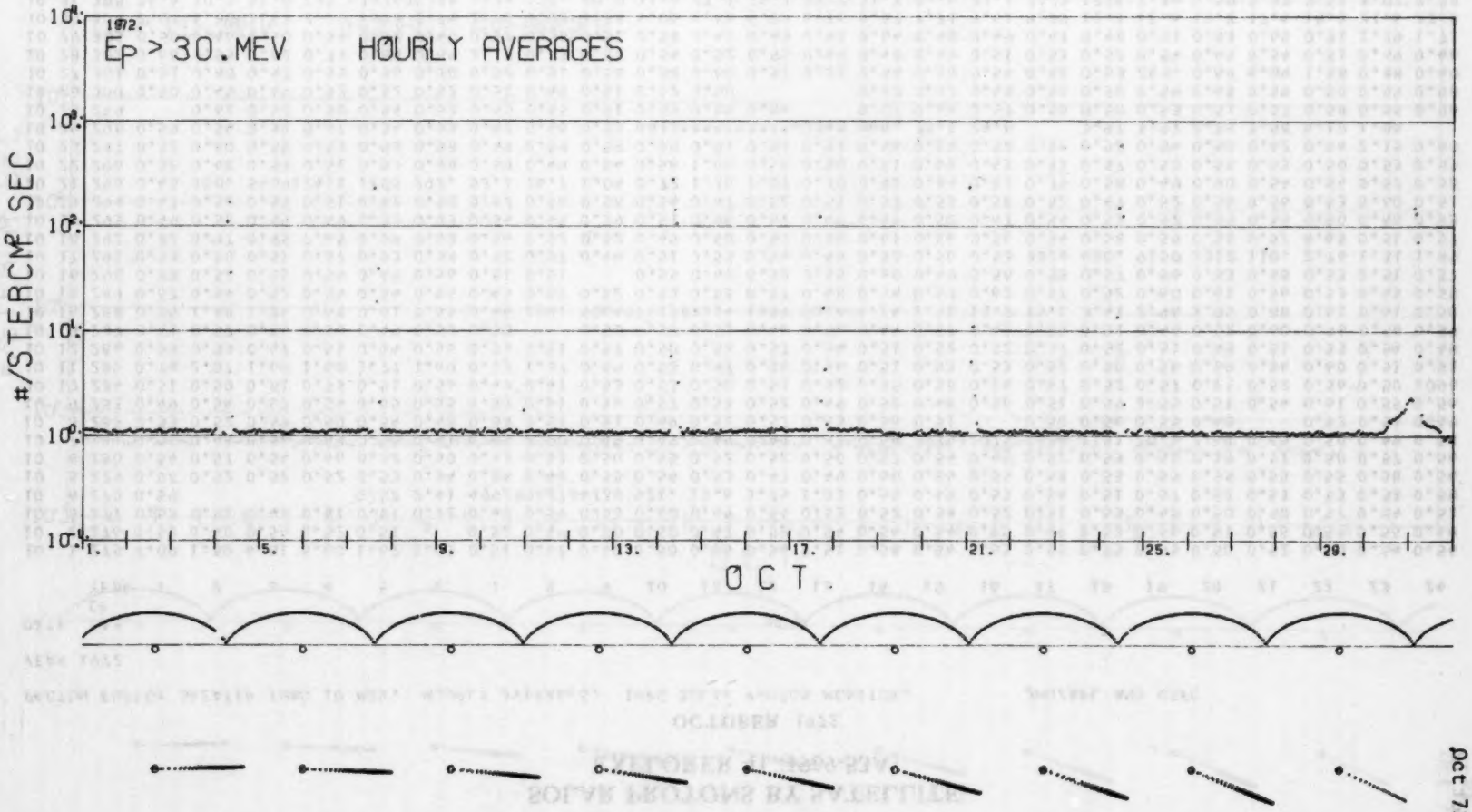
SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969–53A)
OCTOBER 1972

PROTON ENERGY GREATER THAN 30 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1972

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	275	1.13	1.15	1.14	1.12	1.13	1.13	1.10	1.11	1.08	1.12	1.11	1.10	1.09	1.07	1.06	1.02	1.11	1.10	1.07	1.08	1.08	1.06	1.09	1.09
10	2	276	1.12	1.14	1.09	1.07	1.08	1.11	1.11	1.11	1.13	1.08	1.11	1.11	1.11	1.08	1.08	1.10	1.08	1.13	1.11	1.07	1.08	1.06	1.09	1.11
10	3	277	1.12	1.09	1.13	1.07	1.12	1.12	1.09	1.09	1.13	1.09	1.12	1.10	1.11	1.08	1.07	1.08	1.12	1.09	1.11	1.10	1.09	1.11	1.03	1.09
10	4	278	1.13				1.06	1.02	109.	168.	35.5	1.50	1.12	1.10	1.08	1.05	1.06	1.07	1.05	1.07	1.09	1.08	1.09	1.12	1.05	1.10
10	5	279	1.12	1.08	1.07	1.08	1.08	1.09	1.07	1.07	1.09	1.08	1.08	1.10	1.06	1.08	1.05	1.05	1.03	1.09	1.07	1.12	1.09	1.08	1.08	1.09
10	6	280	1.13	1.09	1.09	1.10	1.08	1.07	1.08	1.08	1.06	1.09	1.11	1.08	1.05	1.09	1.11	1.11	1.11	1.12	1.08	1.10	1.12	1.08	1.10	1.08
10	7	281	1.12	1.07	1.11	1.09	1.06	1.12	1.08	1.11	1.13	1.11	1.14	1.06	1.08	1.09	227.	18.9	38.9	2.07	1.14	1.09	1.10	1.11	1.13	1.06
10	8	282	1.12	1.10	1.08	1.08	1.09	1.06	1.07	1.08	1.08	1.07	1.11	1.09	1.06	1.10	1.11		1.08	1.06	1.07	1.09		1.11	1.12	1.08
10	9	283	1.03	1.09	1.12	1.10	1.09	1.08	1.08	1.09	1.13	1.11	1.09	1.08	1.09	1.12	1.05	1.12	1.09	1.08	1.08	1.07	1.07	1.06	1.11	1.06
10	10	284	1.02	1.09	1.16	1.08	1.09	1.09	1.08	1.08	1.05	1.13	1.09	1.06	1.09	1.08	1.11	1.13	1.12	1.08	1.07	1.12	1.05	1.08	1.07	1.75
10	11	285	1.09	1.09	1.10	1.14	1.09	1.09	1.10	1.10	1.08	1.09	1.04	1.05	1.11	1.09	1.10	1.11	1.13	1.12	1.10	1.11	1.10	1.10	1.12	1.10
10	12	286	1.09	1.05	1.10	1.08	1.07	1.08	1.11	1.10	1.08	1.04	1.07	1.04	1.08	1.03	1.07	1.09	1.04	1.09	1.07	1.08	1.05	1.09	1.06	1.10
10	13	287	1.05	1.08	1.06	1.03	1.08	1.05	1.07	1.08	1.07	1.07	1.09	1.11	1.10	1.08	1.06	1.05	1.03	1.09	1.09	1.09	1.06	1.07	1.08	1.06
10	14	288	1.09	1.10	1.06	1.05	1.05	1.05	1.11	5.74	277.	141.	105.	3.23	1.20	1.08	1.04	1.09	1.16	1.07	1.05	1.09	1.04	1.10	1.11	1.06
10	15	289	1.08	1.08	1.06	1.05	1.12	1.04	1.12	1.06	1.06	1.04	1.12	1.07	1.08	1.09	1.09	1.11	1.11	1.07	1.09	1.07	1.10	1.11	1.11	1.13
10	16	290	1.08	1.13	1.11	1.10	1.13	1.09	1.10	1.12	1.08	1.12	1.09	1.09	1.14	1.07	1.16	1.08	1.14	1.12	1.12	1.17	1.15	1.11	1.09	1.13
10	17	291	1.13	1.11	1.11	1.15	1.12	1.11	1.12	1.15	1.11	1.15	1.12	1.15	1.16	1.14	1.16	1.13	122.	2.14	16.4	4.25	1.29	1.14	1.16	1.13
10	18	292	1.15	1.15	1.15	1.11	1.11	1.14	1.13	1.11	1.11	1.16	1.12	1.15	1.17	1.09	1.15	1.15	1.15	1.11	1.10	1.09	1.12	1.10	1.12	1.12
10	19	293	1.11	1.12	1.08	1.02	1.04	1.06	1.08	1.05	1.07	1.05	1.03	1.06	1.00	1.04	1.01	1.03	1.03	1.01	1.01	1.06	1.03	1.09	1.00	1.12
10	20	294	1.05	1.04	1.01	1.05	1.07	1.13	1.10	1.07	1.11	1.05	1.05	1.08	1.13	1.07	1.08	1.06	1.08	1.07	1.07	1.06	1.09	1.06	1.06	1.05
10	21	295	1.06	233.	5.05	10.9	2.43	1.31	1.15	1.10	1.11	1.07	1.09	1.07	1.08	1.04	1.06	1.07	1.09	1.10	1.07	1.10	1.08	1.06	1.05	1.09
10	22	296	1.09	1.04	1.12	1.08	1.06	1.12	1.06	1.11	1.10	1.08	1.10	1.06	1.05	1.07	1.10	1.05	1.03	1.08	1.11	1.08	1.07	1.08	1.07	1.08
10	23	297	1.08	1.06	1.07	1.11	1.11	1.06	1.09	1.04	1.09	1.10	1.08	1.13	1.06	1.09	1.07	1.04	1.07	1.10	1.08	1.08	1.10	1.05	1.10	1.07
10	24	298	1.06	1.06	1.09	1.10	1.05	1.10	1.08	1.06	1.06	13.6	149.	584.	123.	1.99	1.10	1.15		1.08	1.05	1.04	1.04	1.12	1.13	
10	25	299		1.09	1.08	1.11	1.08	1.05	1.06	1.05	1.08	1.06	1.05	1.02	1.08	1.06	1.07	1.07	1.07	1.06	1.08	1.07	1.10	1.09	1.05	1.05
10	26	300	1.04	1.08	1.11	1.05	1.04	1.05	1.08	1.09	1.06	1.03	1.04			1.07	1.06	1.08	1.10	1.11	1.06	1.06	1.07	1.06	1.06	1.07
10	27	301	1.06	1.05	1.07	1.10	1.09	1.08	1.06	1.05	1.06	1.06	1.10	1.06	1.05	1.09	1.08	1.07	1.08	1.08	61.2	1.09	1.08	1.06	1.09	1.08
10	28	302	1.07	1.07	1.06	1.07	1.08	1.08	1.07	1.02	1.04	1.08	1.04	1.03	1.06	1.07	1.04	1.07	1.05	1.09	1.06	1.04	1.03	1.09	1.11	1.05
10	29	303	1.10	1.07	1.03	1.04	1.04	1.05	1.01	1.07	1.04	1.09	1.02	1.06	1.06	1.06	1.07	1.08	1.05	1.05	1.05	1.03	1.09	1.13	1.05	1.10
10	30	304	1.06	1.07	1.03	1.07	1.08	1.05	1.06	1.05	1.09	1.08	1.10	1.16	1.23	1.40	1.37	1.45	1.44	1.50	1.54	1.59	1.71	1.68	1.81	2.08
10	31	305	2.21	2.31	2.21	148.	131.	70.4	5.85	1.61	1.37	1.33	1.26	1.25	1.24	1.26	1.22	1.19	1.15	1.11	0.99	0.91	0.95	1.00	0.90	0.90

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)
OCTOBER 1972



SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

OCTOBER 1972

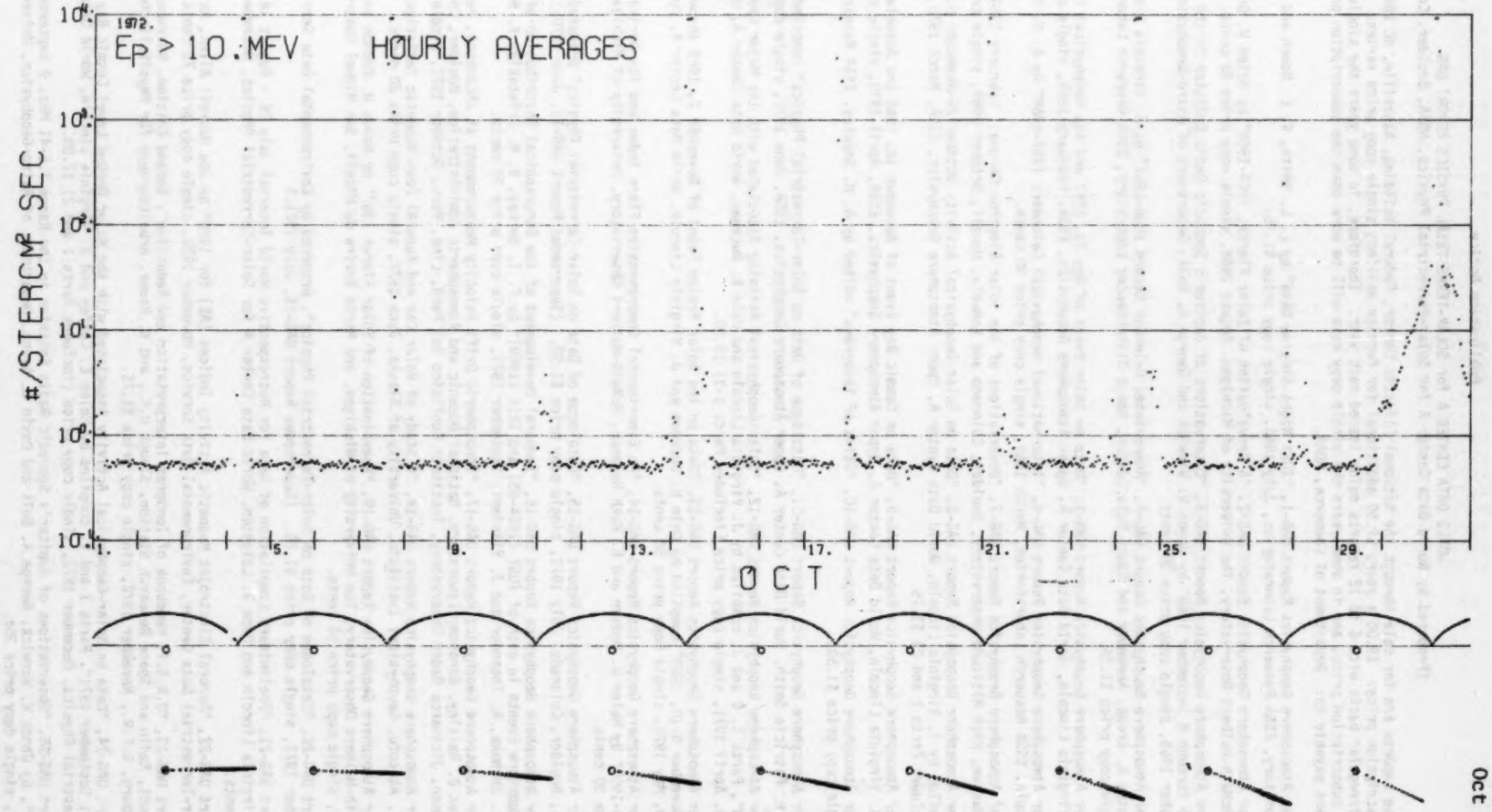
PROTON ENERGY GREATER THAN 10 MEV. HOURLY AVERAGES. IMPG SOLAR PROTON MONITOR. JHU/APL AND GSFC

YEAR 1972

DATE	DAY OF YEAR	HOUR 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10 1	275	7.09	1.50	4.61	5.00	1.62	1.03	0.51	0.57	0.50	0.50	0.55	0.54	0.51	0.58	0.54	0.55	0.55	0.55	0.55	0.50	0.52	0.58	0.54	0.54
10 2	276	0.53	0.48	0.54	0.52	0.51		0.52	0.49	0.50	0.50	0.47	0.50	0.54	0.54	0.54	0.55	0.49	0.53	0.56	0.51	0.55	0.55	0.55	0.48
10 3	277	0.53	0.52	0.48	0.51	0.51	0.52	0.49	0.54	0.53	0.60	0.49	0.54	0.53	0.52	0.54	0.52	0.51	0.55	0.48	0.50	0.50	0.57	0.54	0.51
10 4	278	0.59				0.52	2.41	499	299	627	34	728	521.	13.6	3.75	1.03	0.59	0.49	0.53	0.54	0.51	0.57	0.52	0.53	0.53	0.53	0.50
10 5	279	0.58	0.52	0.52	0.52	0.53	0.54	0.54	0.48	0.55	0.54	0.53	0.47	0.49	0.60	0.55	0.55	0.58	0.53	0.55	0.55	0.55	0.55	0.58	0.56
10 6	280	0.54	0.57	0.54	0.46	0.52	0.50	0.53	0.53	0.50	0.55	0.52	0.52	0.50	0.57	0.54	0.49	0.52	0.53	0.48	0.59	0.57	0.50	0.57	0.56
10 7	281	0.51	0.46	0.52	0.53	0.55	0.51	0.53	0.50	0.49	0.49	0.49	0.48	0.55	0.54	337	912	0752	9684	1181	20.5	2.68	0.65	0.50	0.49	0.58
10 8	282	0.53	0.52	0.49	0.50	0.54	0.48	0.54	0.57	0.51	0.49	0.52	0.57	0.53	0.56	0.51		0.50	0.56	0.55	0.48		0.52	0.51	0.49
10 9	283	0.49	0.54	0.57	0.54	0.55	0.55	0.53	0.51	0.56	0.57	0.53	0.52	0.49	0.50	0.48	0.56	0.51	0.59	0.55	0.51	0.54	0.61	0.55	0.56
10 10	284	0.51	0.50	0.51	0.53	0.51	0.56	0.49	0.47	0.53	0.53	0.50	0.53	0.52	0.55	0.58	0.56	0.47	0.52	0.57	0.51	0.52	0.56	0.50	1096
10 11	285	0.76	2.07	1.60	1.68	3.77	1.60	0.53	1.37	0.69	0.52	0.47	0.56	0.56	0.51	0.53	0.53	0.52	0.50	0.56	0.58	0.54	0.60	0.51	0.51
10 12	286	0.55	0.53	0.47	0.51	0.54	0.55	0.55	0.51	0.57	0.50	0.53	0.57	0.54	0.51	0.52	0.52	0.47	0.52	0.51	0.49	0.51	0.55	0.54	0.49
10 13	287	0.51	0.57	0.54	0.55	0.49	0.52	0.50		0.50	0.50	0.53	0.46	0.50	0.44	0.57	0.48	0.53	0.51	0.46	0.52	0.60	0.96	0.56	0.59
10 14	288	0.89	1.48	1.34	0.68	0.51	0.55	0.44	2081	906	497	915	836	14	1893	56.6	4.24	2.56	11.2	16.1	3.41	2.96	3.95	0.88	0.61	0.61	0.50
10 15	289	0.57	0.54	0.52	0.54	0.54	0.54	0.44	0.55	0.52	0.53	0.53	0.57	0.48	0.54	0.57	0.62	0.57	0.52	0.60	0.61	0.56	0.53	0.45	0.55
10 16	290	0.53	0.52	0.55	0.54	0.49	0.56	0.51	0.51		0.55	0.49	0.58	0.55	0.60	0.49	0.56	0.53	0.57	0.56	0.53	0.55	0.53	0.51	0.57
10 17	291	0.58	0.58	0.51	0.57	0.53	0.58	0.52	0.57	0.44	0.51	0.55	0.54	0.49	0.53	0.56	0.53	3826	630.	9150	2312	110.	2.76	1.31	1.49
10 18	292	0.82	0.97	0.95	0.65	0.59	0.58	0.56	0.52	0.52	0.49	0.50	0.55	0.50	0.61	0.56	0.56	0.54	0.58	0.59	0.51	0.52	0.65	0.51	0.57
10 19	293	0.49	0.52	0.55	0.49	0.55	0.53	0.54	0.45	0.39	0.51	0.48	0.51	0.49	0.49	0.50	0.47	0.54	0.52	0.52	0.55	0.55	0.50	0.48	0.53
10 20	294	0.47	0.52	0.53	0.51	0.52	0.50	0.52	0.56	0.58	0.54	0.47	0.52	0.51	0.57	0.53	0.58	0.52	0.47	0.52	0.56	0.56	0.53	0.60	0.51
10 21	295	0.45	380.	5	46	913	411	1755	292.	53.3	16.7	1.04	0.72	1.16	1.57	0.70	0.92	0.84	0.62	0.75	0.58	0.49	0.90	0.54	0.54	0.52	0.50
10 22	296	0.56	0.48	0.53	0.51	0.53	0.48	0.50	0.49	0.54	0.56	1.08	0.58	0.56	0.51	0.58	0.53	0.55	0.57	0.50	0.55	0.53	0.50	0.53	0.55
10 23	297	0.52	0.60	0.55	0.53	0.50	0.58	0.49	0.59	0.59	0.69	0.51	0.53	0.51	0.56	0.64	0.58	0.48	0.52	0.54	0.50	0.62	0.94	2.15	0.63
10 24	298	0.59	0.54	0.58	0.47	0.54	0.53	0.47	0.48	0.55	881	3**********		60	848	864.	35.1	24.6		3.97	3.97	2.76	3.58	4.10	1.86	
10 25	299		0.61	0.51	0.50	0.54	0.52	0.45	0.55	0.51	0.59	0.55	0.56		0.57	0.66	0.57	0.50	0.50	0.53	0.51	0.57	0.58	0.55	0.56
10 26	300	0.50	0.49	0.49	0.52	0.52	0.52	0.51	0.49	0.51	0.52	0.50			0.52	0.52	0.43	0.50	0.50	0.59	0.65	0.59	0.50	0.55	0.58
10 27	301	0.51	0.49	0.47	0.55	0.56	0.50	0.52	0.51	0.56	0.58	0.60	0.51	0.51	0.54	0.50	0.54	0.48	0.53	248.	0.68	6.09	1.58	0.88	0.60
10 28	302	0.66	0.55	0.60	0.79	0.64	0.69	3.15	0.73	0.58	0.54	0.52	0.95	0.49	0.48	0.49	0.51	0.53	0.52	0.54	0.48	0.54	0.51	0.49	0.46
10 29	303	0.50	0.46	0.50	0.54	0.52	0.49	0.52	0.56	0.51	0.58	0.48	0.43	0.48	0.64	0.48	0.49	0.47	0.48	0.51	0.53	0.65	0.91	1.79	1.71
10 30	304	2.07	1.86	2.13	2.00	1.93	2.75	2.82	3.02	3.35	4.05	4.43	6.00	6.96	8.57	7.71	9.41	9.90	11.1	12.6	14.2	17.6	18.3	21.6	23.5
10 31	305	26.4	30.2	41.0	235.	67	48	638	186	4424	158.	40.0	31.6	27.1	26.2	34.2	31.8	20.6	23.1	21.3	12.6	7.36	4.59	3.92	3.51	3.07	2.35

SOLAR PROTONS BY SATELLITE
EXPLORER 41 (1969-53A)

OCTOBER 1972



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